iSeries e-business Solutions and Tools
The next generation iSeries...
...simplicity in an on demand world

January, May 2003
Agenda

- Adopting e-business status
- IBM WebSphere
- IBM WebSphere Application Server V5, including Express for iSeries
- WebSphere Development Studio, including WebFacing
- iSeries Access summary, including iSeries Access for the Web, Host Publisher and Host Application Transformation Server (HATS)
- WebSphereMQ
- Domino and WebSphere integration update
- WebSphere Commerce and Portal Server

Appendix
- WAS and iSeries education and documentation references
- WAS 4.0 Summary
- Connect for iSeries Summary
- HTTP Server for iSeries caching alternatives, including FRCA (Fast Response Cache Accelerator)
e-business Adoption

Early-business on demand requirements

Early
Integrating
Advanced

0 Access
I Publish
II Transact
III Integrate Internally
IV Integrate Externally
V Adapt Dynamically

% of Adoption by States

Early 80%
Integrating 15%
Advanced 5%

iSeries Focus Areas
1. Build new e-business applications
2. Extend existing applications to the web
3. Buy new e-business solutions from ISVs
4. Consolidate workloads
Notes: e-business Adoption

The e-business Adoption foil depicts how e-business is unfolding in phases - like any new era. And in each one, the Net has transformed the space it moved into. Think of the phases in three broad categories.

**Phase 1: Access** to digital information. This phase is all about publishing content, most of it of the static "lookup" variety. Simple database queries enable things like check a bank account, look at airline flight information, or see where our overnight freight package was. This is "basic access to information. All an enterprise needs is a home page. All an individual needs is a browser. For a majority of business, this "information only access" phase for their business applications has already been accomplished.

**Phase 2: Integration** of transaction flow across the organization. This is more than merely searching for information applications. This involves taking appropriate actions as well. For example:
- Do not just look at your bank account... move some money
- Do not just check a flight departure time... book your seat
- Trade a stock, buy a book, apply for a loan, renew your driver's license, take a college course

This requires more than a Website. This takes behind-the-scenes integration of technologies and business processes.

**Phase 3: End-to-end integration.** This means integrating the processes within the enterprise, as well as all the relationships and transactions that anchor that enterprise in markets and industries.

We know this is where everything is headed; and that not that many business have had gotten there yet. In every industry, the common denominator is a business imperative for end-to-end integration - so that products, services, invoices, components, capital, government services, decisions, answers... All of them are available on demand. This is where the more advanced enterprise are getting now.

The lower left pie chart represents IBM Software Group's assessment as of December 2002, estimating percents of all businesses doing "work on the web" from simple web page serving to integrated end-end applications that can dynamically adjust, based on analysis of recent types of transactions and new opportunities.

The right box represents the iSeries e-business focus areas throughout 2003.
**WebSphere: Foundation For e-business**

**WebSphere Portal Server**
Access widespread and diverse data sources from anywhere, anytime, by anyone you allow.

**WebSphere Commerce**
Powerful sell-side solutions to handle the broad range of challenges encountered in B2B and B2C environments.

**WebSphere MQ**
Exchange information among more than 35 platforms with assured delivery.

**WebSphere Studio**
Professional development tools based on a common workbench technology.

**WebSphere Application Server**
High performance and extremely scalable transaction engine for dynamic e-business applications.

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**Not Categorized as WebSphere**
- WebFacing Tool
  - Included in WDS
  - 1 copy in WebSphere-Express
- iSeries Access for the Web
  - Part of iSeries Access Family

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**The dynamic e-business infrastructure for IBM, partner and customer solutions**
Notes: WebSphere: Foundation for e-business

The WebSphere family of products from IBM's foundations for e-business application implementations.

**WebSphere Application Server:** The WebSphere Application Server is at the base of this foundation, building upon basic HTTP serving functions. It is a highly flexible, performance-oriented and scalable Java servlet transaction manager, with consistent attention to the need to embrace new functions and technologies as defined by the industry.

**WebSphere Studio:** WebSphere Studio is the general term applied to a set of development tools based upon a common workbench technology to develop, integrate, and deploy your e-business solutions.

In addition to the base set of WebSphere family e-business facilities are other major WebSphere components, that include:

**WebSphere Commerce:** IBM WebSphere® Commerce software offerings provide power single "store" and multiple store "shopping mall" sell-side solutions to handle the challenges encountered in customer and trading partner environments, helping you to sell goods and services online to a global and mobile marketplace. Implement B2C, B2B, or private exchange business models using open, industry-accepted standards. And confidently engage with IBM WebSphere's proven technologies in next-generation e-commerce.

**WebSphere Portal Server:** Allows businesses to address multiple constituencies with personalization needs beneficial to both B2B and B2C commerce solutions. The Portal server, based on "your profile information" enables you to access a diverse set of data sources and applications - anywhere and anytime, governed by appropriate authorization.

**WebSphere Message Queue (WebSphereMQ):** For years the IBM Message Queue services functions have enabled basic and expanded Message Queue application interfaces to route data requests and responses using a common interface and set of functions that are essentially operating systems and communications protocol independent. MQ services are now more fully integrated with other WebSphere functions and interfaces to be rebranded as WebSphereMQ.

All of the above have iSeries implementations.

Note: WebSphere products are, by design, enabled for integration with each other, your existing "pre-web" applications, and other products, such as Domino, that can take advantage of WebSphere's "design for integration."
Though not formally categorized as part of the WebSphere family of products the following products build upon the WebSphere Application Server foundation element:

**WebFacing Tool as part of the iSeries "WebSphere Development Studio for iSeries client" product**: The WebFacing tool's objective is to enable your existing 5250 applications to run as an e-business Internet application (interfacing to browsers) with little or no changes to source programs. WebFacing functions require an active WebSphere Application Server.

**iSeries Access for Web**: This is a separate no-charge component of the iSeries Access family. iSeries Access for the Web enables browser based interfaces to all iSeries resources, including spooled output, messages queues, 5250 applications and more. It includes use of a powerful subset of the iSeries Navigator (Windows operating system on the client required) functions. iSeries Access for the Web functions require an active WebSphere Application Server or the Open Source Tomcat Java servlet server.
Overview of Web Application Servers

The way portable applications are deployed to the Web

Java™ server-side components rely on web application servers

- Servlets, Java Server Pages (JSP's) -> WebSphere Application Server 3.5 SE, 4.0 AE-Single Server, WAS V5.0 Express
- Enterprise Java Beans (EJB's), workload management -> , WebSphere Application Server 3.5 AE, 4.0 AE-Multiple Servers, WAS V5.0 (Base), Network Deployment

The Past - Client/Server

The Web Way

WebSphere Runs Here
Notes: Overview of Web Application Servers

In the middle of this foil we are

A Web Application Server is a set of routines or software that serve to link existing "legacy" applications and data to web applications, without the use of 'screen-scrappers' or things like 5250 HTML Gateway that do not provide a true graphical interface - or CGI (Common Gateway Interface) programs that do not make use of the existing application programs and data.

Technically iSeries supports four different Web Application Server foundations:
- WebSphere Application Server
- Domino for iSeries
- iSeries' open environment providing API's and offering from Independent Software Vendors and Business Partners
- Java

The servlet manager (App Server in the graphic) also keeps track of session states for a specific client to server session and where Sun Microsystems' Enterprise Java Beans (EJBs) specifications are implemented, maintains transaction integrity (corresponds to iSeries Commit and Rollback functions).

In the middle of this foil you can see the "past paradigm" of a client/server implementation. As things turned out, this "model of application design" was based upon Windows clients performing significant application functions. That has resulted in every more expense upgrading dozens or hundreds of workstations and making keeping each "fat client," constantly up to date with new releases of software and software fixes.

After a decade or so of these implementations, the industry is moving forward with "thinner clients (minimized processing power and software maintenance) accessing single or transparently multiple host servers where processing power and software maintenance can be more closely managed.

You can see where the WebSphere Application Server runs in this foil, though with powerful management capabilities there could be more than one server actually performing the transaction requested by the thin client.

The next foil is a simplified review of what EJBs represent.
Enterprise Java Bean Review

- Component model for server-side business logic
- High-level, attribute-based interfaces for:
  1. Security
  2. Recoverable Transactions
  3. Persistence
- Separate from, but complementary to, JavaBeans
Notes: Enterprise Java Bean summary

Enterprise JavaBeans (EJB) technology is a key Java construct as it inherently provides the following for "related EJBs" that would otherwise require user programming, if implemented:

- Security
- Recoverable Transactions (commit/rollback capabilities)
- Persistence (each dialogue is part of the preceding dialogue; that is, this request is for another item in the order entry application already started to this client workstation)

The Enterprise JavaBeans component model logically extends the JavaBeans concept. It is targeted at the server tier business logic development. It provides interfaces that insulate the programmer from the complexities and dependencies that are unique to a platform.

EJB technology provides a component model for server applications. It allows you to easily separate user interfaces from business logic. The server-side business logic is packaged as Enterprise JavaBean components. Once they are written and deployed on a server such as the AS/400 system, client programmers can use them with very little knowledge of how the beans actually work. The client programmer only has to know what methods the Enterprise JavaBeans support and how to call them. Another key advantage is that whether you are writing a Java application, a Java applet, a Java servlet or even a Visual Basic program, it always works the same. You only need to call the methods provided by the Enterprise JavaBeans to handle the application processing.

A Session EJB contains the business logic. An Entity EJB is contains data. You can see the Entity EJB accessing the actual database object.

A Session EJB can call another Java program/Bean or a legacy program, such as an iSeries RPG program.
### iSeries Web Servers
- IBM HTTP Server
- Domino HTTP server
- IBM HTTP Server for iSeries

### Web Application Servers (WAS) for iSeries
1. **IBM WebSphere Application Server V5 (NEW)**
2. IBM WebSphere Application Server V4.0  
   (WebSphere Advanced - single & multi-server)
3. IBM WebSphere Application Server V3.5  
   (Older - technical support ending 11/30/2003)
4. Apache Software Foundation's Jakarta Tomcat  
   (Open Source - Not Strategic)

### Diagram

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<tr>
<th>iSeries</th>
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<tr>
<td><strong>Web Server</strong></td>
<td><strong>Web Application Server</strong></td>
<td><strong>Core Business Applications</strong></td>
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<tr>
<td>Static Web Page Serving</td>
<td>Web Transaction Serving</td>
<td>Transaction and Data Serving</td>
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</tbody>
</table>
Notes: iSeries, Web Serving and Web Application Serving

This foil positions basic web serving (IBM primary web servers listed) with the IBM WebSphere Web Application Server products and the OpenSource offerings, along with the Web Server, Web Application Server, and Core (existing in most cases) Business Applications.

In the upper left rectangle, we list the primary IBM-provided Webserver software:
- IBM HTTP Server or iSeries Powered by Apache, included with 5722-DG1 (open interfaces, strategic (consistently enhanced)
  Note: As of January 2003, the HTTP Server for iSeries powered by Apache, is at Apache level 2.0.43 on both V5R1 and V5R2.
- IBM HTTP Server or iSeries, included with 5722-DG1
- Domino HTTP Server, included with 5733-LD5, 5733-LD6

In the right rectangle we have listed the Web Application Servers, supported on iSeries. Note that Tomcat is useful for simple Java servlet serving and is no longer considered to be a strategic product as, though Open Source, it lags behind WebSphere and other non-IBM web application servers in level of functions supported.

WAS 3.5 Standard Edition:
- 5733-AS3 - up to 128 bit encryption support. Note that WAS 3.5 Standard Edition is "for free" on iSeries. Note also that neither 3.5. SE nor Advanced Edition (AE) are formally supported on V5R2. If you have WAS 3.5 installed on a V5R1 or earlier iSeries you have a free upgrade to version 4 or 5.

WAS 3.5 Advanced Edition:
- 5733-WS3 - up to 128 bit encryption support

WAS 4.0 Advanced Edition Single Server:
- 5733-WS4 - up to 128 bit encryption support

WAS 4.0 Advanced Edition (Multiple Servers):
- 5733-WA4 - up to 128 bit encryption support

WAS 5.0 - Express:
- 5722-IWE - up to 128 bit encryption support

WAS 5.0 (Base):
- 5733-WS5 (#4421) - up to 128 bit encryption support

WAS 5.0 Network Deployment):
- 5733-WS5 (#4422) - up to 128 bit encryption support

The bottom graphic reminds us of where these web-serving components are in the flow of requests and responses between a client browser and an HTTP server and any associated applications. The Performance Update presentation provides some additional details from a performance perspective.
IBM WebSphere Application Server

- A highly flexible application server platform based on industry leading J2EE & Web services architecture
- Configurations available to meet the changing needs of different usage scenarios
- Built to be cross-platform and fully open & standards-based

Web Services are supported with WebSphere Application Server V4 & V5 (including WebSphere - Express)

- Build, connect and integrate applications, servers, and device
- Accelerate the pace of integration
- Access to partner and supplier services

Web Services

- WSDL: Describe the service and how to use it
- UDDI: Yellow pages for web services
- SOAP: Connect the service
- Publish
- Find
- Bind
We now begin a sequence of foils on the WebSphere Applications Server, primarily using Version 5 capabilities. Subsequent foils remind us the versions 3.5 and 4.0.n continue to be supported for at least the next 6 months (Version 3.5).

The WebSphere Application Server is the product family that implements the latest industry and Java standards (Java 2 Extended Edition (J2EE)). Its primary purpose is to provide a common Java servlet deployment and management across multiple operating systems. This foil highlights V5 which is becoming available on iSeries 1H 2003.

This foil emphasizes the Web Services capabilities and the key protocols to get things to work together.

**Web Services:** Web Services is the name given to the capability to allow disparate Internet-based programs to work together with minimal human intervention — in key industries such as financial services, health care and telecommunications. Specific web services can be used to accomplish some desired function. Web Services are described in WSDL. A Web Services description is registered in the UDDI directory. The following paragraphs provide more information on WSDL and UDDI.

**WSDL:** The Web Services Description Language (WSDL) has a lot of versatility in its methods of use. In particular, WSDL can work with UDDI registries in several different ways depending upon the application needs. WSDL is an XML language for describing Web services as a set of network endpoints that operate on messages. A WSDL service description contains an abstract definition for a set of operations and messages, a concrete protocol binding for these operations and messages, and a network endpoint specification for the binding.

Web Services Markup Language (WSDL) is the "modern day" follow-on for having interoperable Web-based distributed applications that correspond to the "hot topic" of a few years ago - Electronic Data Interchange (EDI). The EDI market, which emerged well before B2B on-line e-commerce gained any significant presence -- and with the popularity of the B2B marketplace, interoperability has come into the spotlight again as a measuring stick for the newer interchange technologies.

The purpose of WSDL is to "describe" your Web services. Businesses will exchange WSDL files to understand the other's services. SOAP comes in once you know your partners' services and wish to invoke them. You can think of services as objects which are accessed by SOAP.

Most likely you will be communicating with potential partners via the Internet or through e-mail. The Internet, of course, uses HTTP and e-mail works on SMTP, making HTTP and SMTP the favored candidates for acting as "transport service providers" to SOAP.
WSDL describes the answers to the following questions:
- What are the services offered in your online business?
- How can you invoke your business services?
- What information do your business services need from the user when he or she invokes your service?
- How will the user provide the required information?
- In which format will the services send information back to the user?

**SOAP**: Simple Object Access Protocol is based upon XML and is a lightweight (simple) protocol that provides a service oriented architecture for applications on the web. A client composes a request and sends the request in a SOAP envelop to a provider. The provider replies within a SOAP response.

Simple Object Access Protocol (SOAP) is an XML based protocol that consists of three parts:
- An envelope that defines a framework for describing what is in a message and how to process it.
- A set of encoding rules for expressing instances of application-defined datatypes.
- A convention for representing remote procedure calls and responses.

SOAP can potentially be used in combination with a variety of other protocols.

**UDDI**: The Universal Description, Discovery and Integration (UDDI) project is a project that creates standard for a platform-independent, open framework for describing services, discovering businesses, and integrating business services using the Internet. It also includes an operational registry that is available today. UDDI is the cross-industry effort driven by all major platform and software providers, as well as marketplace operators and e-business leaders. The UDDI project takes advantage of WorldWide Web Consortium (W3C) and Internet Engineering Task Force (IETF) standards such as Extensible Markup Language (XML), and HTTP and Domain Name System (DNS) protocols.

Businesses of all sizes can benefit from UDDI, because the specifications comprehensively addresses problems that limit the growth and synergies of B2B commerce and Web services. UDDI is not industry-specific. Any industry, worldwide, offering products and services can benefit from this open initiative. UDDI creates a standard interoperable platform that enables companies and applications to quickly, easily, and dynamically find and use Web services over the Internet. UDDI also allows operational registries to be maintained for different purposes in different contexts. UDDI is under the OASIS standards consortium. For more information, see http://www.uddi.org/.
XML: Extensible Markup Language (XML) is used as the name of an entire suite of standards and practices for application design, and to refer to a particular meta-language, known as XML 1.0. XML carries the data and defines the data types and structures (you can use other things, but XML is the default).

Despite its name, XML is not a single markup language. Instead, it's a meta-language which lets you design your own markup languages. In essence, XML began as a simplified dialect of SGML, intended to allow groups of people, organizations, or industries to create their own customized markup languages for exchanging information in their domain (music, chemistry, bibliographies, mathematics, etc.).

Since all of these specific languages share a common structure, it becomes practical to build general tools that will manipulate any XML-based document. And since that structure is very simple and regular, it's also easily readable and manipulatable by humans.

Applications range from allowing web pages to move back from rendering-specific to conceptual markup, to allowing software to more easily gather information from many web pages (treating the web as a database rather than a collection of pamphlets), to providing a simple alternative to EDI for standardizing inter-enterprise and inter-device data transfer. **XML** is a key technology for device-independent user interaction and for Web Services.

An XML document is completely self-contained and includes both data and descriptions of the contained data. The objective of the XML document is for the programmer, regardless of various operating systems implementations, to extract the meaning of the data from the XML document without additional documentation. An XML document is primarily a series of elements, in which each element consists of a starting tag, the data, and a data ending tag. You can specify sub-elements to improve search capabilities and describe the actual structure of the data within the document.

The beginning of the XML document may contain a declaration, that can specify information such as XML level and information such as character coding format.

In a business to business data exchange, a typical XML document is supplemented by either a Document Type Definition (DTD) or a schema that defines the required elements and enables basic data validation. For example, before accepting the purchase order for fulfillment processing, the receiving vendor's application can validate the XML documents against the published DTD or schema.

XML support also includes use of eXtensible Stylesheet Language Transforms (XSLT), which enables transformation of an XML document to another data structure with minimal programming.

An XML parser is the tool that processes the received XML document and does functions such as extracting the quantity and part number from a received order request and determine if inventory is available to fulfill the order. There are two general classifications of parsers:

- **Document Object Model (DOM):** DOM parsers construct the entire XML document hierarchy and are ideal for applications that process all or most of most of the data within an XML document.
- **Simple API for XML (SAX):** SAX parsers are event driven. Each time it detects an element or attribute it checks to see if any application has requested notification of that particular element/attribute. If so, the SAX parser generates an event that applications listening for that event are able to process the element/attribute. SAX parsers are ideal for applications that need to process a specific element or a small percentage of elements from an XML document.
XML continued

The benefit is data independence. Instead of having to define the data types and structures separately and specifically for each language that you are using, the data types and structures can be defined in XML independently of any underlying programming language, database system, or middleware system. This eliminates complex data type mapping and other tedious programming when converting data from one format to another.

The primary difference between Web services applications and traditional applications is the use of XML and HTTP. XML provides an independent data type and structuring mechanism for constructing messages, and HTTP provides a widely adopted network connecting virtually any system to any other.

Notes:

One specific example of the use of an XML document on the iSeries involves moving data between an XML document and UDB DB2 for iSeries. You can do this through programming or UDB DB2 Universal Extender for iSeries, 5722-DE1. With this product you can:

- Use wizards to map XML elements to row columns in one or more tables and automate the process of deciphering the data from an XML document structure.
- Move data between XML documents and the database.
- You can also move data between the database and an XML document using Java classes - JDBC classes or record level access classes included in the IBM Toolbox for Java.

You can use the XML support included in WebSphere Development Studio client for iSeries - version 5 announced for April 2003 availability. Version 5 integrates IBM WebSphere Studio Site Developer Version 5, which includes enhanced XML support.
IBM WebSphere Application Server V5

An extended J2EE & Web services 'build-to-integrate' platform for creating, composing & choreographing adaptable networked application flows and behaviors

**iSeries Support**

The *mainstream* Web services J2EE 1.3 application server enabling industry leading QoS and flexible deployment options

An easily approachable "on-ramp" to e-business, providing fast and productive development, deployment of dynamic web applications

A J2EE web services application server specifically optimized to the unique *QoS of z/OS*
There are essentially 5 offerings under WebSphere Application Server Version 5.0:

- **Enterprise**: provides sophisticated workflow management that is not really needed by iSeries customers, given the Network Deployment support on iSeries.
- **For zOS**: offered as a special customized version for zOS, including applications running under zOS.
- **Base**: provides the latest suite of Java Version 2 Enterprise Edition (J2EE) 1.3 functions including EJB and other continuing enhancements from Sun Microsystems (TM) and takes advantage of iSeries' Quality of Service (QoS) capabilities.
- **Network Deployment**: provides multiple system clustering support and other network deployment facilities, including dynamic caching, IBM Tivoli Performance Viewer, and integration with third-party tools.
- **Express**: provides more basic Java servlet management (no EJB support), improved set up ease of use interfaces and faster start up of WAS instances on iSeries than earlier WAS versions.

The following foils provide additional details on the offerings supported on iSeries.
Integration: WebSphere Application Server V5 on iSeries

- Flexible choice of Web application server, packaged for range of customer sizes
- Network Deployment
  - Advanced clustering, distributed security, directory and systems management
- Base
  - Premier application server
  - Integrating enterprise data and dynamic e-business transactions
- Express
  - Development environment
  - Simple, dynamic Web sites
  - Additional wizards for quick deployment

Redpaper: Information about administering and configuring WebSphere Application Server - Express on iSeries can be found in WebSphere Application Server - Express V5.0 for iSeries, REDP3624
Redbook: WebSphere Application Server V5 for iSeries: Installation, Configuration, and Administration, SG24-6588
Notes: Integration: WebSphere Application Server V5

WebSphere Application Server V5 provides a flexible choice of Web application server, with three packages for customers of different sizes and e-business application requirements.

WebSphere Application Server – Express offers a cost-effective, out-of-the-box solution for managing simple, dynamic Web sites with a simplified Web application server and a development environment based on WebSphere Development Studio Client for iSeries.

WebSphere Application Server – Base V5 is IBM’s premier Java 2 Enterprise Edition (J2EE) and Web services technology-based application platform, offering one of the first production-ready application servers for the deployment of enterprise Web services solutions for dynamic e-business. It provides J2EE 1.3 support to simplify enterprise applications by basing them on standardized, modular components. Its single, browser-based administration tools allows an administrator to move seamlessly between configurations with across all deployment options. It supports core Web services standards like XML, SOAP, and WSDL. Security can be maintained with WebSphere’s extensive support of open, standards-based Java specifications and WebSphere software's pluggable security architecture.

WebSphere Application Server Network Deployment delivers world-class caching, high availability, and industry-leading Web services support on top of the base Java™ 2 Enterprise Edition (J2EE™) 1.3 WebSphere Application Server foundation. Its advanced Web services features include UDDI Registry that acts as a repository that allows storage of business units that describe basic Web services. It also provides a Web Services Gateway that enables Web services invocation by users from outside a firewall but with the benefit of robust security protection. Network Deployment also provides enhanced workload management with dynamic caching and performance management tools that provide for distributing workloads across multiple servers via sophisticated load balancing and clustering technologies.

Note: iSeries WebFacing is shown as an important part of implementing e-business applications under WAS V5. Except for being included with the Express for iSeries offering, it is not packaged with the WAS V5 base and Network Deployment offerings. The WebFaced application runs under any of the supported WAS instances, but is actually "generated" using either WebSphere Development Studio Client for iSeries or WebSphere Development Studio Client for iSeries Advanced Edition, as described later in this section of the presentation.

See the redbooks listed on this foil for more information on WAS V5 running on iSeries.
WAS V5.0: Base, Network Deployment

- WAS Advanced V4 (single-server) - is now WebSphere Application Server V5 - $8,951 per cpu*
- WAS Advanced V4 (multi-server) - is now WAS Network Deployment V5 - $13,441 per cpu*
  - Adds clustering, workload management, distributed security, systems management & directory
- J2EE 1.3 (EJB's) including a native, high performance JMS messaging server
- Provides a comprehensive XML Web services environment based on the latest open standards
- Improved, easy-to-use automated administration and management services

*Sub-capacity pricing on iSeries
Notes: WAS V5.0: Base, Network Deployment

This foils summarizes the new WAS 5.0 capabilities but focuses on iSeries pricing considerations - sub-capacity pricing with currently planned US prices.

To use this on iSeries you must configure one or more logical partitions. This way you can selectively specify the number of processors in the one or more partitions that will be using WAS 4.0 or 5.0. The contract requires the iSeries to send its hardware and performance statistics to IBM for monitoring purposes.

Here is an LPAR example. The iSeries is an i890 24-way. WebSphere Application server would be quite expensive with a 24 processor (cpu) price. So the customer uses 2 partitions, one with 2.4 processors assigned and the other partition has 2.2 processors assigned. This would be, rounded up to 5 processors and a 5 processor price would be charged.

See the following web sites for more information on sub capacity pricing:
- The above URL can be linked to by selecting the first category on right-hand side under Features for this URL: --http://www-1.ibm.com/servers/eserver/iseries/software/

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IBM WAS V5 (base) and Network Deployment features

- Base and Network Deployment
  - Full J2EE V1.3 compatibility, including Enterprise Java Beans (EJBs) support
  - JDBC and Connection Management for access to DB2, SQL Server 2000 and Oracle 9i
  - Industry-leading support for key Web services standards (WDL, DDI, SOAP, XML)
  - Enterprise-ready Java Message Server (JMS) provider
  - Integrated development tools
  - Broad cross-platform support
  - Unparalleled connectivity
  - Enhanced basic security capabilities
  - Superior performance and scalability
  - Improved, browser based administrative console

- Network Deployment offering adds:
  - Managing clusters, workloads
  - Dynamic caching, Tivoli Performance Viewer
  - Advanced multiple system authentication and authorization through Java based security functions and CSI V2
  - Support for private UDDI registries
Notes: V5 Base, Network Deployment - Key features

This foil lists most of the enhancements included in Base and Network Deployment offerings. IBM WebSphere® Application Server, with V5 is the premier Java™ 2 Enterprise Edition (J2EE™) and Webservices technology-based application platform, offering one of the first production-ready application servers for the deployment of enterprise Web services solutions for dynamic e-business. Version 5.0, including:

- Provides J2EE 1.3 support to simplify enterprise applications by basing them on standardized, modular components
- Lowers total cost of ownership and improves your ability to leverage assets
- Allows you to move seamlessly between configurations with one browser-based administration across all deployment options
- Improves programmer productivity and simplifies enterprise development with JMS API, while supporting core Web services standards like XML, SOAP, and WSDL
- Enhances security through extensive support of open, standards-based Java specifications and WebSphere software's pluggable security architecture
- Offers improved performance analysis and application tuning with IBM HTTP Server 2.0
- Offers full advantage to Java Message Services capabilities, including JMS message-driven beans with imbedded JMS transport
- Provides integrated tools support with WebSphere Studio Application Developer
- Delivers broad cross-platform support
- Migration tools and assistance

Base is optimized for administrative ease of use in a single server deployment.

The next foil is a table summary of Version 5 Base and Network Deployment functions.
## WAS V5 Base, Network Deployment Comparison

<table>
<thead>
<tr>
<th>Feature</th>
<th>WAS V5 Base</th>
<th>WAS V5 Network Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full XML support</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Full Web services support to host and consumer Web services</td>
<td>X</td>
<td>X</td>
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<td>JDBC and Connection Management for access to DB2, SQL Server 2000 and Oracle 9i</td>
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<td>Web services client for access to back-end Web services</td>
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</tr>
<tr>
<td>Extended platform support for IBM AIX, Sun Solaris operating environment, HP-UX</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Full J2EE 1.3 support to maximize J2EE functionality</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Microsoft component object model architecture to EJB support for integration with ActiveX client and server resources</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enhanced features for performance such as dynamic caching, Tivoli® Performance Viewer, integration with third-party tools</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Advanced authentication and authorization such as JAAS and JCE for enhanced security</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Support for some J2EE 1.4 features</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Extended JDBC support for access to Informix and Sybase</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Extended HTTP Server included for configuration flexibility and added security</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Browser-based administration for remote administration across firewalls</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Full Java Message Service (JMS) support message-driven beans, including embedded JMS transport</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Migration tools and assistance</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Support for private UDDI registries</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enhanced authentication and authorization through CSI, V2, single sign on, embedded LDAP</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Restricted DB2 license (WAS for Developers also supports restricted DB2 license)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Web Services Gateway</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Intelligent workload distribution across a cluster</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Failure bypass</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Clustering support</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Notes: WAS V5 Base, Network Deployment comparison

Use this chart for comparing WAS V5 Base with V5 Network Deployment software options.

For your information:
- JAAS: Java Authentication and Administration Services
- JCE: Java Cryptography Extension
### WebSphere International standards support levels

<table>
<thead>
<tr>
<th>Standard</th>
<th>Level</th>
<th>WebSphere 5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>J2EE</td>
<td>1.3</td>
<td>Fully certified and part of Sun Microsystem's JCEE list</td>
</tr>
<tr>
<td>EJB</td>
<td>2.0</td>
<td>EJB 2.0, and EJB 1.1 support</td>
</tr>
<tr>
<td>JDK</td>
<td>1.3</td>
<td>JDK1.3</td>
</tr>
<tr>
<td>Servlet</td>
<td>2.3</td>
<td>Servlet 2.3</td>
</tr>
<tr>
<td>JSP</td>
<td>1.2</td>
<td>JSP 1.2</td>
</tr>
<tr>
<td>JTS/JTA</td>
<td>1.0</td>
<td>With Distributed Transactions</td>
</tr>
<tr>
<td>JMS</td>
<td>1.0.2</td>
<td>With Native Provider and MQ Plugin</td>
</tr>
<tr>
<td>JDBC</td>
<td>2.0</td>
<td>Across heterogeneous databases</td>
</tr>
<tr>
<td>JNDI</td>
<td>1.2</td>
<td>JNDI 1.2 for EJB look up and CosNaming</td>
</tr>
<tr>
<td>RMI/IIOPO</td>
<td>1.0</td>
<td>Full support</td>
</tr>
<tr>
<td>JavaMail/JAF</td>
<td>1.2</td>
<td>Plus Domino support</td>
</tr>
<tr>
<td>SSL Security</td>
<td>2.0</td>
<td>JSSE and JCE</td>
</tr>
<tr>
<td>XML JAXP</td>
<td>1.0</td>
<td>XML in EJBs</td>
</tr>
<tr>
<td>J-IDL/CORBA</td>
<td>IIOOP 1.2</td>
<td></td>
</tr>
<tr>
<td>J2C</td>
<td>1.0</td>
<td>Bean and container management</td>
</tr>
<tr>
<td>LDAP</td>
<td></td>
<td>SecureWay, iPLanent, Activedirectory</td>
</tr>
<tr>
<td>HTTP</td>
<td>1.1</td>
<td>Yes, plus across multiple Web servers</td>
</tr>
<tr>
<td>SOAP, SOAPSEC</td>
<td>2.2.2</td>
<td>SOAP support for Webservices. Technology preview available</td>
</tr>
<tr>
<td>COM/ASP Support</td>
<td></td>
<td>With Java wrapping and proxy</td>
</tr>
<tr>
<td>JMX</td>
<td>1.0</td>
<td>JMX support pending</td>
</tr>
<tr>
<td>XML4J</td>
<td>4.0</td>
<td>XML support</td>
</tr>
<tr>
<td>XSL</td>
<td>2.3</td>
<td>XSL Parser</td>
</tr>
</tbody>
</table>
Notes: WebSphere International standards support levels

This chart is available for those with detailed knowledge and understanding of Java and other Internet standards for management and information exchange and want to know what levels are supported on WebSphere V5.
**New Terminology**

- **Managed process or server**: Each server runs in its own Java virtual machine (JVM)
  - Application servers
  - JMS server

- **Node agent server**
  - Resides on a single node (physical machine)
  - Manages the servers running on the node

- **Deployment manager server**: Manages the multiple nodes in a distributed topology

- **Cell**: Network of multiple node agents in a single logical administration domain
  - Single Deployment Manager - central administration of the cell
Notes: New Terminology

It is important to understand some fundamental administrative concepts or terms used in WAS Version 5.

By "Managed Process" or "Server" we mean any instance of a JVM that can be managed in a WebSphere V5 environment. Application Servers are managed processes, but also JMS Servers (a special type of server that runs the integrated JMS infrastructure) falls in this category too. Other examples of managed servers are the Node Agent and the Deployment Manager, which are discussed later in this chart.

The Node Agent is responsible for controlling all the remaining servers running on a certain box. Most likely, you will be running a single node agent on a certain physical system, although it is conceivable that on some very high-end systems multiple node agents may be concurrently up and running.

A network of related node agents makes a Cell. A Cell is very similar to the concept of "domain" we had in the previous versions of WebSphere.

In a Cell, there is going to be a single "Deployment Manager" - and although you may be inclined to think that this process is equivalent to the Administrative Server of previous releases, this is NOT the case here. The Deployment Manager main purpose is to allow an administrator to manage the resources in the entire cell - in other words, it provides the ability to perform centralized administration in the cell.
WAS 5.0 Coexistence, Migration Considerations
Planning Considerations

- Systems Management
  - The Administrative Console is browser-based
    - Good interface but requires adjustment by user
  - WebSphere Application Server Network Deployment is required to provide equivalent multi-node functionality of a WebSphere Version 3.5 or 4.0 domain
  - For Network Deployment environments
    - Determine where to install WebSphere Application Server Network Deployment
    - Plan for the appropriate hardware prerequisites
Notes: Planning Considerations

Migration steps
This section discusses the migration steps. Begin by planning for the migration. System management and administration have undergone major changes in WebSphere V5.0 and require additional planning. You also need to decide between coexistence and interoperability. The prerequisites must be met.

Planning for migration
There are many planning steps required for setting up a new e-business network. These steps are beyond the scope of this presentation.

These summary foils focus on migration to Version 5.0. See the WebSphere Version 5.0 InfoCenter planning section for more information on setting up a complete network.

In general, the existing network and topologies that are already in place are still applicable to the Version 5.0 configuration. There are a few additional capabilities that should be considered:

- Systems management administration: The systems management administration and packaging are considerably different for Version 5.0. The Administrative Console is browser-based instead of a Java program. The good news is the administration functions can be used from any workstation installed with the supported browser level listed in a following chart.
- WebSphere Application Server Network Deployment is required to provide equivalent multi-node functionality of a WebSphere Version 3.5 or 4.0 domain.

Additional planning is required for those environments that will include WebSphere Application Server Network Deployment. A determination will need to be made where to install WebSphere Application Server Network Deployment. If WebSphere Application Server Network Deployment will be installed on a machine that also has WebSphere Application Server, then planning for appropriate hardware prerequisites (such as memory and CPU capacity) will need to be done. If WebSphere Application Server Network Deployment will be installed on a new machine, then it must be determined where to include it in the network and whether to include migration as part of its installation.
Coexistence of WAS 5.0 with previous versions

- If you have a previous version, you must plan to copy the configuration and applications of the previous version to the new version
  - Migration does not uninstall the previous version
  - Version 5 can coexist with the earlier versions
  - There are four combinations of migration and coexistence that you can select:
    - Migrate only
    - Coexist only
    - Migrate and coexist
    - Neither migrate nor coexist
Migration

- Base support is provided:
  - For Version 3.5.3 and later
  - For Version 4.0 and later
  - All products must be on same iSeries

- With multiple instances, you must migrate one instance at a time
  - Each instance must migrate to a unique 5.0 instance

- Migrate to base instance
  - If migrating to Network Deployment, then add Node after migration
Interoperability

- Interoperability provides a mechanism to run nodes in a mixed version environment
  - This enables incremental version upgrade
  - Domains can be upgraded independently
  - Domains can interoperate with one another
Notes: Interoperability

Interoperability provides a mechanism to run nodes in a mixed version environment. This enables incremental version upgrade because domains can be upgraded independently and still interoperate with one another, allowing domains to be migrated incrementally. The base support is provided for Version 3.5.3 and later as well as Version 4.0 and later to Version 5.0.

This is desirable when you have a currently running production system in place and want to move to the newer version of WebSphere Application Server.

The last foil and notes specific to the WAS V5.0, before discussing WAS V5 Express for iSeries, gives a glimpse of the new browser-based Administrative console interface.
Brief Summary of WAS 5.0 browser-based console

- Browser based Admin Console was introduced in the WebSphere 4.0 AEs

- In WAS 5.0, Browser based Admin Console is expanded to manage entire Cell.

- Admin Console is standard J2EE 1.3 Web application
  - The Admin Web Application loads, edits and updates the configuration (XML) files.

- Supported Browsers:
  - Microsoft Internet Explorer 5.0, 5.5, 6.0 (or later)
  - Netscape Navigator 4.7.x (varies by platform)
  - Netscape 6.1 Browser is not supported, but is expected to work
The WebSphere administrative console is a graphical, Web-based tool that you use to manage the IBM WebSphere Application Server administrative server. The administrative console supports a full range of product administrative activities.

WebSphere release 5.0 Administrative web application builds upon the Admin web application architecture and functions which were introduced in the WebSphere 4.0 AEd/s offerings. In the 4.0 time frame, the scope of the Administrative web application was designed to accommodate the requirements necessary to support the configuration capabilities for a single WebSphere Domain, Node, and Application Server, while transitioning over to a new XML-based configuration architecture.

The following is a glimpse of the WAS 5.0 Administrative Console interface.
Save operation will publish all the changes to Master Copy.

Hide Page and Field description.

View the items that will be updated with the save operation.

Status Messages Area.
WAS 5.0 Express

**WebSphere Application Server - Express for iSeries**

A cost effective, easily approachable "on-ramp" to e-business, providing fast and productive development, deployment & management of dynamic web sites.

- WAS-Express V5 includes:
  - Web application server - WAS-Express V5
  - Application development tool - WebSphere Development Studio Client (WDSc)
  - Includes IBM Telephone Directory

- WebSphere Application Server - Express V5 for iSeries
  - OS/400 Support
    - V5R1 (GA - 2/21/2003)
    - V5R2 (GA - 3/14/2003)
  - Intel support
    - Windows 2000 & Linux

On iSeries: $2K per processor

Minimum iSeries = 300 CPW & 500 MB memory!
Notes: WAS 5.0 Express

This foils introduces some more details on WAS 5.0 Express for iSeries.

The next foil summarizes the major selling functions of Express:
Lower cost, primarily because it does supports Java Beans, but not J2EE EJBs support.
Easier, quicker to get up and running through improved wizards
Includes the WebSphere Development Studio for iSeries Client (WDSc) for quick development and deployment of Java servlets. WDSc includes the WebFacing tool highlighted in this announcement,

You see when Express is available on V5R1 and V5R2 OS/400 releases.

Note that Express for iSeries has been specifically implemented in Direct Execution (DE) mode to take less system resources during start up of the defined WAS instance. DE means no run time Java interpretation goes on.

See also the 300 CPW minimum and 500 MB of main storage requirement.
WebSphere Application Server - Express V5.0

- Broad WAS 5.0 functionality with small investment:
  - Support for servlets, Java Server Pages, Web services, JDBC, JNDI, JavaMail, JavaBean Activation Framework (JAF) and Java API for XML parsing (JAXP)
  - Support for server-side JavaScripts using the Bean Scripting Framework (BSF)
  - Simplified application administration through WebSphere Development Studio Site Developer (included)
  - Basic platform for rapid implementation on Windows, Windows NT, Windows 2000, Linux and OS/400
  - Integration with:
    - HTTP server for iSeries and Domino for iSeries HTTP
    - OS/400 security for user authentication
  - Embedded HTTP server
  - Migration from WAS Standard Edition and ASF Jakarta Tomcat
  - Migration support to move to advanced WAS configurations
- Includes WebSphere Development Studio clients (WDSc) for iSeries
  - WebFacing, and more...
- Includes sample business application - IBM Telephone Directory V5.1
- Includes Web Services Object Runtime Support (WORF)
IBM WebSphere Application Server - Express for iSeries is premier Java and Web Services technology-based application platform integrating enterprise data and transactions with the dynamic e-business world. It provides the rich e-business application deployment environment of the iSeries with a set of application services including capabilities for transaction management, security, performance, availability, connectivity, and scalability. It manages and integrates enterprise-wide applications while leveraging open technologies and application program interfaces (APIs). These enhancements solidify the iSeries role as the integrator of the WebSphere software platform. Industry-leading integrated support for key Web services open standards enable the iSeries with the first production-ready Web application server for the deployment of enterprise Web Services solutions for dynamic e-business.

WebSphere Application Server - Express for iSeries provides a tight integrated with the iSeries HTTP server through easy-to-use Web-based GUI. Wizards allow for easy configuration of multiple application server and deployment of applications. The wizards allow for easy configuration of both HTTP servers and access to iSeries databases.

WebSphere Application Server - Express for iSeries offers:

- Support for servlets, based on the Java Servlet 2.3 specification
- Support for JavaServer pages, based on the JSP 1.2 specification
- Support for Web services standards like SOAP, WSDL, and UDDI offers companies the ability to create secure distributed applications that integrate software components developed with disparate tools and architectures over the Web.
- Support for JDBC 2.0, JNDI, JavaMail 1.2, JavaBean Activation Framework (JAF) 1.0, and Java API for XML parsing (JAXP)
- Support for server-side JavaScripts using the Bean Scripting Framework (BSF)
- Browser-base administration with easy-to-use wizards for creating HTTP and application server instances, deploying J2EE applications, and management of HTTP and application servers and their applications
- Integration with IBM WebSphere Studio, built on Eclipse, the open systems development environment
- Integration with HTTP Server for iSeries and Domino for iSeries HTTP servers
- Integration with OS/400 security for authentication of users
- HTTP session support
- Migration support for WebSphere Standard Edition (SE) and Apache Software Foundation (ASF) Jakarta Tomcat
- Migration support to more advanced WebSphere Application Serving configurations

Based on the latest Java and Web services standards, WebSphere Application Server - Express for iSeries lets you convert static Web sites into dynamic Web sites by viewing and performing simple information updates in back-end databases. It also enables you to consume Web services and resources for integrating with packaged applications.

IBM WebSphere Application Server - Express for iSeries is based on the latest Java and Web Services standards. When more advanced development and deployment capabilities are needed, IBM WebSphere Application Server - Express offers smooth migration to other WebSphere Application Servers.
Express versions of WebSphere Application Server V 5.0 and WebSphere Development Studio Client for iSeries

Express for iSeries includes a slimmed down version of WebSphere Application Server V5 and WebSphere Development Studio Client for iSeries. An integrated installation option is available if installing both the development environment and a Web application server on the same machine. This simplifies the user interface.

WebSphere Application Server - Express for iSeries includes a simplified administration interface to the basic functions of creating and configuring server instances, configuring data sources and ports, starting and stopping the server, publishing an application to the server, and stopping and restarting the application. Wherever possible, default settings are established so configuration is not required and maintenance efforts are minimized.

The WebSphere Development Studio Client for iSeries is the same product that comes with WebSphere Development Studio for iSeries except that there is only a single license of WDSc with Express, whereas you get an unlimited license of WDSc with WDS.

Quick start examples provided

Quick start samples -- document distribution/human resources, survey and voting booth, electronic catalog, customer self-service (customer logon for account update, FAQs, feedback form), MyRTPL home page (inclusion of information from various sources, cookie personalization, search, Web Service consumption), YourCo (demonstrates how an application might differ when written in JSPs and servlets compared to tag libraries and JavaScript, personalization based on login, search, conference room registration). These samples help speed application development.

Tag library & JavaScript support

Jakarta Tag Libraries are included within the development tool for easy use. JavaScript support is added on both the development and application server side. Existing programming skills can be leveraged.
Notes: WebSphere Application Server - Express V5.0

Application Server functions provided
- Tool-based application management and deployment
- Full support for migration to a higher functionality application server
- Operating system support: OS/400 V5R1, or later

Specifications:
- Web container support includes:
  - JSP processor
  - Server-side JavaScript (Bean Scripting Framework)
  - WebSphere Common Control Model libraries
  - XML parser
  - XSL processor
  - Web Services -- SOAP client API only
  - Security runtime (simple WebSphere authentication, local OS authorization -- no LDAP or custom registry support)
  - RAS subsystem
  - HTTP session support -- in-memory session support
  - J2EE API libraries
  - Internal Web server
  - JVM 1.3.1
  - Simplified default server configuration
  - Connection Manager
  - JDBC providers
  - Debug libraries
  - Installs as Windows service (Windows platforms only)
  - HTTP Web administrator console extensions (iSeries platform only)
Development Tools (IBM WebSphere Development Studio Client for iSeries) functions included:
- Rapid Web design and authoring tooling, including HTML, JSP and JavaScript
- Visual Page Designer to create Web user interfaces
- Wizards to create Web interfaces to databases
- GIF editing and animation tools
- Web services creation and consumption (supports WSDL, SOAP and UDDI)
- JSP debugging
- Interface to version control systems
- Simple deployment of applications to the application server
- Operating system support: Windows NT, 2000, XP

WORF
IBM is developing its programming models and application servers with the Web services and is providing development tools to automatically generate Web services from existing Java Beans, EJBs, and stored procedures. Web services Object Runtime Framework (WORF) is based upon DB2 XML Extender capabilities and enables submission of SQL statements and optionally control of the format of the returned data.

This support is relatively recent and includes the following supported Web services operations:
XML-based query or storage: That is, an XML document is stored in DB2 relational tables and composed again upon retrieval. This method of operation requires the presence of DB2 XML Extender support (5722-DE1 on iSeries).
SQL-based query: This includes calling stored procedures, or inserting, updating, deleting DB2 data.

WORF provides an environment to easily create simple XML-based Web services that access DB2. Using Apache Simple Object Access Protocol (SOAP) 2.2, or later, and the Document Access Definition Extension (DADX) standards, you can, with minimal knowledge of SQL or XML, specify a Web Service.

You can also use DB2 UDB Extenders (5722-DE1) to implement Web services within WORF. The DB2 XML Extender (part of 5722-DE1) consists of a set of stored procedures, user-defined types (UDT), and user-defined functions (UDF) that you can use to store and retrieve XML data using DB2. The DB2 XML Extender allows XML documents to be stored intact, and optionally indexed in side tables, using the XML column access method, or as a collection of relational tables using the XML collection access method.

WORF is integrated with WebSphere Application Server - Express for iSeries run time, allowing for easy administration and deployment of DB2 UDB Web services. A sample application is provided and easily deployed from the application server's integrated GUI.

A sample telephone applications is provided and discussed on the next foil.
WAS 5.0 Express - Cost Topics

WebSphere Application Server - Express for iSeries
A cost effective, easily approachable "on-ramp" to e-business, providing fast and productive development, deployment & management of dynamic web sites

- WAS-Express V5 is priced right for MidMarket!
  - $2,000 per CPU (unlimited number of web users - Intranet/Internet/Extranet) OR
  - $25 per user (Intranet only registered users - buy in increments of 20 users)
  - Price includes 1 year of Software Maintenance (Passport Advantage (PPA))

- Current customers who have WAS Standard Edition (V3.02 or V3.5) & OS/400 SW subscription
  - Entitled to 1 copy of WAS-Express for iSeries
  - Must have ordered WAS V3.X by 1/28/2003
    - If WAS SE V3.X runs on one CPU = one copy of WAS - Express
    - If WAS SE V3.X runs on multiple CPU’s = one copy of WAS - Express
    - If WAS SE V3.X runs on 100 iSeries servers = 100 copy of WAS - Express
IBM Telephone Directory provides "out-of-the-box" functionality

- iSeries-only offering for WAS V5 and WebSphere-Express V5 for iSeries

Provide ISV's and customers with an application which can be used immediately

- "Started simple" with WebSphere
- Provide a valuable application all customers can use

Powerful search capabilities

- Name - photo - phone - role - division - department - management chain, etc.

IBM Telephone Directory is no-cost for first 1,000 entries

- Small media charge in PPA (approx. $25)
- IGS special bid for 1,000+ entries

URL: http://elcrtp25.raleigh.ibm.com:3633/bizApps
## WAS V5 vs. WebSphere Express V5 Capabilities

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<td>Embedded HTTP Server</td>
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</tr>
<tr>
<td>Browser-based administration for remote administration across firewalls</td>
<td>X (iSeries only)</td>
<td>X</td>
</tr>
<tr>
<td>Full Java Message Service (JMS) support message-driven beans, including embedded JMS transport</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Migration tools and assistance</td>
<td>X (iSeries only)</td>
<td>X</td>
</tr>
</tbody>
</table>
Notes: WAS V5 vs. WebSphere Express V5 Capabilities

WAS 5.0 for iSeries Express has a fantastic list of functions - a subset of the full WAS V5 capabilities. This chart is a single page summary of WAS V5 Express for iSeries and full WAS V5 support ("base" and Network Deployment).
## WAS Ordering, Software Maintenance

### Customers buying new iSeries models in 2003

- **WebSphere is included in many iSeries offerings** (for start-up processors of CUoDs)
  - WAS-Express V5
  - WAS Advanced V4 (single server)
  - WAS V5 (base server)

- **Software Maintenance**
  - Eligible for one year Software Maintenance (no cost)
  - Must enroll/register in Passport Advantage (PPA)

- **Additional orders after initial purchase**
  - Configurator (PID) vs. Passport Advantage (PPA)
    - WAS-Express - PPA only
    - WAS V4 & WAS V5 - PPA and PID
  - Configurator ordering (PID) going away in mid-2003

### Models and Value Editions

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>800</td>
<td>No WAS</td>
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<td>WAS-Express V</td>
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<tr>
<td>825/870/890</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No WAS</td>
<td>Choice of WAS-Express V5 or WAS V4 or WAS V5</td>
</tr>
</tbody>
</table>
Notes: WAS Ordering, Software Maintenance

This foil summarizes the ordering options available for installing WAS on the iSeries. Note that on the iSeries 800, i810, i825, i870, and i890-2497/2498 models versions of WAS are included in some of the editions listed.

Note: WAS 3.5 to WAS 5.0 Express is no charge - one copy per system. If WAS 3.5 is ordered before January 28, 2003, you are eligible for a free copy of WAS 5.0 Express.
## iSeries minimum hardware requirements

<table>
<thead>
<tr>
<th>Servlets and JSPs only</th>
<th>Applications that contain EJBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS/400e server 170 with processor feat 2292</td>
<td>AS/400e server 170 with processor feat 2385</td>
</tr>
<tr>
<td>AS/400e server 720 with processor feat 2061</td>
<td>AS/400e server 720 with processor feat 2062</td>
</tr>
<tr>
<td>iSeries Model 270 with processor feat 2250</td>
<td>iSeries Model 270 with processor feat 2252</td>
</tr>
<tr>
<td>iSeries Model 820 with processor feat 2395</td>
<td>iSeries Model 820 with processor feat 2396</td>
</tr>
<tr>
<td>300 CPW with 512 MB of memory per application server instance</td>
<td>460 CPW with 750 MB to 1GB of memory per application server instance</td>
</tr>
</tbody>
</table>


**Important**: WebSphere requires the existence of L2 cache and enough memory.
This is an overview chart of the minimum hardware requirements for implementing WebSphere Application Server on iSeries. For production environments some of the key considerations would be as follows:

- Implement systems that have L2 cache feature. Providing this feature speeds up the initialization process of WebSphere Application Server. It also has a positive impact on throughput.

- Memory requirements for WebSphere Application Server should start at 768 MB per processor, with a recommendation of 1 GB per processor. WebSphere Application Server is a very robust Java based application and the more memory for caching, pooling, garbage collection, etc. the better.

- Systems that do not meet the recommended minimums may be used in environments that support a limited number of users and where longer server initialization times are acceptable.

The Workload Estimator (WLE) has specific WebSphere Application Server workload definitions that can be used to assist you in sizing your iSeries server for WebSphere Application Server applications, including those using the WebSphere Development Studio for iSeries WebFacing tool.

The next foil shows you how to find WebSphere V5 on iSeries performance tips.
Finding WAS V5 iSeries Performance Tips


WebSphere Application Server

This page describes the performance considerations for WebSphere Application Server for iSeries.

Updated: February 05, 2003

Performance Considerations: WebSphere Application Server V5.0

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<th>Format</th>
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<td>PTDV tool (Performance Trace Data Visualizer)</td>
<td>HTML</td>
</tr>
<tr>
<td>iSeries Performance Capabilities Guides</td>
<td>HTML</td>
</tr>
<tr>
<td>IBM Workload Estimator for iSeries</td>
<td>HTML</td>
</tr>
<tr>
<td>Tuning Garbage Collection for Java and Websphere on iSeries</td>
<td>PDF</td>
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</tbody>
</table>
WebSphere Development Studio for iSeries
WDS: What is new as of January 2003

- IBM WebSphere Development Studio for iSeries V5R1 and V5R2 refreshed to Version 5
  - No changes to the 5722-WDS host components (since original V5R2 availability)
  - WebSphere Development Studio Client for iSeries V5 is based upon V5 of WebSphere Studio Site Developer
  - WebSphere Development Studio Client for iSeries V5 is based upon V5 of WebSphere Studio Application Developer for Linux and Windows.
  - New visual builder for easily constructing Web applications conforming to the OpenSource Struts standard
  - WebFacing Tool updates
    - On the new iSeries 800, i810, i825, i870, and i890 (2497/2498), Webfaced applications do not consume 5250 CPW utilization
  - For existing IBM WebSphere Development Studio for iSeries (5722-WDS) customers with software subscription, this workstation tools refresh is a no-charge upgrade
  - Version 5 available April 25, 2003
This foil and the next foil summarized what is new with a software refresh of 5722-WDS and the addition of a new Advanced Client set of functions.

IBM WebSphere Development Studio Client for iSeries Advanced Edition V5.0 is new for iSeries:
- Consolidates the standard set of application tools for iSeries server and e-business development into one comprehensive, integrated and attractively priced iSeries product
- Inherits the improved Web and J2EE development capabilities from WebSphere Studio Application Developer V5.0

The following foils give more detailed information all refreshed and new WDS functions.
WebSphere Development Studio for iSeries

- Combines Legacy and web development in one offering
  - iSeries host components: RPG, COBOL, C++, WebFacing Tool
  - iSeries-oriented client tools
    - Legacy client - CODE/400 & VisualAge RPG
    - Web client - Java, HTML, XML, & Web Services
- WebSphere Development Studio Client (WDSc) is PC-based client application development tool
  - 1 copy of WDSc is shipped with WAS-Express for iSeries

Customer Benefits

- Support existing application development as well as new web-development
- Integrate the key tools of e-business, Java, and web development
- Ability to "wrapper" RPG applications as web service!
- Modernize 5250 applications via WebFacing Tool

70,000 copies shipped since May 23, 2001!
Notes: WebSphere Development Studio for iSeries

WebSphere Development Studio for iSeries, 5722-WDS, is contains the host compilers and development tools and client-based development tools used by many developers of iSeries applications. It includes, in a packaged priced all the host compilers typically used for developing iSeries applications in RPG, COBOL, C, C++, and corresponding and complementary client workstation development tools.

WDS enables support of existing applications development and new web-based application development. It includes support for integrating updated tools for e-business, Java, and web application development.

Note that a slimmed down version of WDS is included, with WebSphere Applications Server - Express for iSeries.

The following foils provide more details on WDS.
WebSphere Development Studio for iSeries, 5722-WDS

- One stop shopping for iSeries developers, includes Web and Java tools

- Host Development Tools
  - RPG, COBOL, C, C++ ADTS
  - WebFacing server**

- Client
  - Project management
  - CODE, VisualAge RPG
  - Java tools
  - HTML, XML, & Web Services tools
  - WebFacing development tool

January 2003: Refresh

Webfaced applications run without interactive capacity (5250 CPW - Commercial Processing Workload) on iSeries 800, i810, i825, i870, i890 (2497, 2498)
WebSphere Development Studio for iSeries is an attractively-priced, integrated, comprehensive suite of application development tools for both e-business and traditional iSeries development. This new suite of tools contains both server and workstation components that are optimized for iSeries development. WebSphere Development Studio for iSeries can be used to create new e-business applications, and to quickly and easily convert existing business applications to Web-enabled solutions.

WebSphere Development Studio for iSeries V5 offers existing tools such as RPG and ADTS for traditional development. It also offers new tools such as Web, Java, XML, Web Services, and IBM WebFacing Tool for e-business development.

For customers and solution providers who need to create e-business applications for the iSeries server, WebSphere Development Studio for iSeries provides a comprehensive, cost-effective suite of tools that helps them to:
- Convert existing 5250 interfaces to Web interfaces with minimal changes to the host application with the IBM WebFacing Tool.
- Create new Web applications that access iSeries data and applications
- Build new e-business applications with Java, ILE RPG, ILE COBOL, XML, Web Services, and Web tools
- Port e-business applications from other platforms
- Create Web enabled applications with little Java or Web skills

WebSphere Development Studio for iSeries V5R2 introduces the Eclipse-based IDE and WebSphere Studio Workbench, for integrating both IBM and non-IBM development tools.

WebSphere Development Studio Client for iSeries, V5.0 integrates the key iSeries development tools to IBM’s Eclipse-based Integrated Development Environment (IDE), WebSphere Studio Workbench. This new IDE provides the infrastructure to integrate both IBM and non-IBM development tools and facilitate near seamless interoperation.

The availability of WebSphere Studio Workbench and the WebSphere Studio family of products is a significant advancement in application development.

The next foils group the development tools into host based tools and client workstation-based tools.
### Host components

<table>
<thead>
<tr>
<th>Code</th>
<th>Notes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5722-WDS</td>
<td>*BASE 5050</td>
<td>WebSphere Development Studio</td>
</tr>
<tr>
<td>5722-WDS</td>
<td>*BASE 2924</td>
<td>WebSphere Development Studio</td>
</tr>
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<td>5722-WDS</td>
<td>21 5050</td>
<td>Tools - Application Development</td>
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<td>5722-WDS</td>
<td>31 5050</td>
<td>Compiler - ILE RPG IV</td>
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<td>Compiler - ILE RPG IV</td>
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<td>5722-WDS</td>
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<td>Compiler - System/38 Compatible RPG III</td>
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<td>Compiler - RPG/400</td>
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<td>Compiler - RPG/400</td>
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<td>Compiler - ILE RPG IV *PRV -</td>
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<tr>
<td>5722-WDS</td>
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<td>Compiler - ILE COBOL</td>
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<td>Compiler - ILE C</td>
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<td>51 2924</td>
<td>Compiler - ILE C</td>
</tr>
<tr>
<td>5722-WDS</td>
<td>52 5050</td>
<td>Compiler - ILE C++</td>
</tr>
<tr>
<td>5722-WDS</td>
<td>52 2924</td>
<td>Compiler - ILE C++</td>
</tr>
</tbody>
</table>

WebSphere Development Studio for iSeries has two additional, separately priced components:
- Application Development Manager (ADM)
- Application Dictionary Services (ADS)

Note: IBM is planning to discontinue marketing ADM and ADS components in the release after V5R2. IBM is currently working with the key iSeries partners to provide competitive non-IBM products to replace ADM and ADS.
Host components continued

IBM intends for V5R2 to be the final release to ship the Open Class Library, which is part of WebSphere Development Studio for iSeries and OS/400. You can find documentation to assist in migrating from IBM Open Class to the C++ Standard Library at:
http://www.ibm.com/servers/eserver/iseries/support/planning/nav.htm

Note: Customers with Software Subscription can upgrade, at no additional charge, to 5722-WDS from any of the products listed, except 5799-GDW.

ILE RPG and ILE COBOL are equally good choices for business logic for e-business application development. Both compilers are part of WebSphere Development Studio for iSeries and have added Java interoperability enhancements.

For solution providers who want to port e-business applications from other platforms to the iSeries, it's never been easier. WebSphere Development Studio for iSeries includes C and C++ compilers. The C compiler adheres to the ANSI C89 standard, and the C++ compiler adheres to the ANSI C++ 98 standard.

For iSeries provides comprehensive support through the RSE. RSE is the workbench perspective for iSeries development tools.

You can define your connections to server systems. Provide drill-down or filtered access to specific iSeries libraries, objects, members, jobs, IFS folders and files, Linux folders and files, Unix and Windows folders and files, and local folders and files. Two choices of editors, LPEX and CODE edited.

iSeries Project and Navigator provide support for project-based, team-sharable, development.
Host components - January 2003
IBM WebSphere Development Studio for iSeries V5R1 and V5R2 refreshed
- No changes to the 5722-WDS host components (since original V5R2 availability)
- New visual builder for easily constructing Web applications conforming to the OpenSource Struts standard
- WebFacing Tool
- For existing IBM WebSphere Development Studio for iSeries (5722-WDS) customers with software subscription, this workstation tools refresh is a no-charge upgrade Subscription can upgrade, at no additional charge, to 5722-WDS from any of the products listed.

Client components
WebSphere Development Studio for iSeries (5722-WDS) orders ship the workstation tools, WebSphere Development Studio Client for iSeries (media kit LK3T-8882), V5.0 as free automatic entitlement.
Client Components continued

IBM WebSphere Development Studio Client for iSeries, V5.0 (media kit LK3T-8882)

IBM WebSphere Development Studio Client for iSeries, V5.0 consolidates the standard set of application tools for iSeries server and e-business development into one comprehensive, integrated and attractively priced iSeries product. The suite inherits the improved Web and Java development capabilities from WebSphere Studio Site Developer V5.0 that make it easy to create, test, deploy and maintain sophisticated e-business applications with little Java, Web or Web-Service programming. It also includes a new visual builder for easily constructing Web applications conforming to the OpenSource Struts standard. It also adds significant iSeries-specific value. The IBM WebFacing Tool makes it easy to quickly and cost effectively Web-enable your existing 5250 applications. iSeries-specific wizards, additions to the Struts builder and other extensions, make it easy to build e-business applications that reuse existing iSeries programs, data and skills. The improved iSeries host development capabilities of the new Integrated Development Environment (IDE) provides many compelling reasons for application developers to upgrade from Application Development ToolSet (ADTS) or CoOperative Development Environment (CODE).

The Eclipse IDE reduces the learning curve by providing a consistent interface for developing iSeries server applications and e-business applications. This allows your developers to progress easily to new levels in their application development. The IDE delivers on the promise of tool integration and interoperability. It includes seamless integration with best-of-breed tools from IBM and several key iSeries partners to support end-to-end application development life cycle.

WebSphere Studio Site Developer V5 for e-business development, which provides:
- Powerful Java, Web, Web Services, XML, and database tools that speed the creation, testing, and deployment of sophisticated e-business applications
- A builder for visually constructing Web applications based on the open-source Struts standard
- Significant iSeries-specific enhancements for Web, Web Services, and Java development, including extensions to the Struts builder
- IBM WebFacing Tool for cost-effectively Web-enabling 5250 applications
- A powerful, integrated iSeries environment for RPG, COBOL, CL, and DDS development
- Seamless integration with best-of-breed tools from IBM and key iSeries partners
- CODE - Classic version for the current users of CODE
- VisualAge RPG - Enhanced classic version to create event-driven GUI RPG applications for Windows or Java GUI-capable clients or browsers
- Distributed debugger - Classic version for multi-language, multi-tier e-business applications
Client Components continued

IBM WebSphere Development Studio Client Advanced Edition for iSeries (media kit LK3T-8883)

WebSphere Development Studio Client Advanced Edition for iSeries is designed to meet the needs of the advanced iSeries developer. The Advanced Edition consolidates the standard set of application tools for iSeries server and e-business development into one comprehensive, integrated and attractively priced iSeries product. It inherits the improved Web and J2EE development capabilities from WebSphere Studio Application Developer V5.0.

AE includes all the functionality in WebSphere Development Studio Client for iSeries plus:

- A rich J2EE and EJB development and test environment.
- Java performance, measurement, analysis and memory leak tools.
- A Struts based runtime for the IBM WebFacing Tool. The Struts Visual Builder can be used to customize and extend the IBM WebFacing Tool application in an industry standard way.
- The iFrame portlet that makes it easy to add existing Web applications (including the IBM WebFacing Tool applications) to the WebSphere Portal environment.

See the next foil for a graphical view of WebSphere Development Studio Client Advanced Edition for iSeries.
WDS Client Advanced Edition for iSeries

- **5722-WDS plus:**
  - J2EE and EJB development and test environment
  - Java performance, measurement, analysis and memory leak tools
  - iFrame portlet: easy addition of existing Web applications to the WebSphere Portal environment
  - Includes the IBM WebFacing** Tool applications

- Based on WebSphere Studio Application Developer for Linux and Windows, V5.0,

**WebFaced applications run without interactive capacity (5250 CPW - Commercial Processing Workload) on iSeries 800, i810, i825, i870, i890 (2497, 2498)**
Notes: WDS Client Advanced Edition for iSeries

WebSphere Development Studio Advanced Edition for iSeries (media kit LK3T-8883) orders ship with the advanced workstation tools, WebSphere Development Studio Client Advanced Edition for iSeries, V5. The customer orders an optional chargeable feature to acquire the advanced workstation tools.

WebSphere Development Studio Client Advanced Edition for iSeries, V5 delivers:
- Powerful Java, Enterprise Java Beans (EJB), Web, Web Services, XML and database tools
- A builder for visually constructing Web applications based on the open-source Struts standard
- Significant iSeries-specific enhancements for Web, Web Services, and Java development including extensions to the Struts builder
- iSeries Extensions include:
  - IBM WebFacing Tool for cost-effectively Web-enabling 5250 applications. Also included are several features that improve the extensibility and customizability of the Web applications generated using the IBM WebFacing Tool. These features include an optional open-source Struts infrastructure, conversion-time extension points, an option to use IBM and user-defined custom tags, command-key action overrides for user-defined actions, and support for displaying and printing iSeries spool files.
  - An iFrame portlet and sample
  - A powerful, integrated file, project, edit, compile, and debug environment for iSeries RPG, COBOL, CL, and Data Description Specifications (DDS) development
  - Seamless integration with best-of-breed tools from IBM and key iSeries partners
- CoOperative Development Environment (CODE)
- VisualAge RPG
- Distributed debugger

WDS does not provide support for Enterprise Java Beans in its base version. WebSphere Development Studio Client Advanced Edition which will be available in the Spring of 2003 fills that gap.

WebSphere Development Studio Advanced Edition for iSeries is based on the IBM WebSphere Studio Application Developer (WSAD) product. IBM WebSphere Studio Application Developer for Linux and Windows, V5.0, became available December, 2002. It is IBM's premier Development Environment for the creation and maintenance of J2EE and Web Services Applications. For more information on WebSphere Studio Application Developer (WSAD), see the announcement letter 202-330, dated December 30 and 06, 2002.

For cross platform customers, WebSphere Studio Application Developer may be a better choice of tooling although it is more expensive than WDS. A single developer license of WSAD is provided in all of the Host Integration software bundles.
Notes: WDS Client Advanced Edition for iSeries -2


For existing WebSphere Development Studio for iSeries (5722-WDS) customers, it is a price upgrade to acquire WebSphere Development Studio Advanced Edition for iSeries. Refer to the Announcement letters for ordering instructions.
WebFacing Tool

- Part of WebSphere Development Studio for iSeries (shipped with WDSc, WDScAE)
- Supports 5250 and web interfaces
- Quickly convert RPG/5250 applications to Graphical User Interface (GUI)
- End-users access applications via browser
- iSeries 800, i810, i825, i870, i890 (2497/2498) models (only) do NOT require 5250 CPW
Notes: WebFacing Tool

Ask your customer which existing applications they plan on:
- Access from browser
- Using GUI to enhance the application to user interface. For example, show the image of the product, hotel room, dependent sub portions of a hotel, air, and auto reservation

These are the candidates for use through WebFacing.

For customers and solution providers who need to move existing iSeries applications to the Web, the IBM WebFacing Tool component of WebSphere Development Studio for iSeries can be used to help convert 5250 interfaces to Web interfaces. The conversion is simple and minimizes the requirement for Java and Web development skills.

IBM WebFacing Tool, which makes it easy to quickly and cost effectively web enable your existing 5250 applications. The IBM WebFacing tool converts your 5250 application Data Description Specifications (DDS) display files, (User Interface Manager (UIM) menu source, and help files into Java Servlets, standard Java ServerPages (JSPs), JavaBeans, and JavaScript to allow your application to run in either WebSphere Application Server Version 5 or Version 4. Enterprise Java Beans (EJBs) are not used. This is an easy way to bring your application to either the Internet, or the Intranet, both quickly and inexpensively.

The JSPs execute on WebSphere Application Server. There is no separate development tool charge for the IBM WebFacing Tool. Run-time is any supported version of WebSphere Application Server that supports JSPs, servlets, and Java beans.

WebFacing does not operate under the Tomcat server.

Customization of the Web enabled application can be accomplished using IBM WebSphere Development Studio Client for iSeries, V5.0, and IBM WebSphere Development Studio Advanced Edition Client for iSeries. WebFacing is a plug in to either of the following, which are included under WDSC V5.0 and WDSC Advanced Edition V5.0:
- WebSphere Studio Site Developer
- WebSphere Studio Application Developer
Notes: WebFacing Tool -2

Hardware Requirements

iSeries System minimum requirements:

- WAS 4.0, any edition, WAS 5.0, any offering. WebFacing does not support Tomcat
- 370 CPW under WebSphere Application Server editions 4.0 or older and under WebSphere Application Server V5 Base or Networking editions.
- 300 CPW under WebSphere Applications Server V5 Express

Workstation minimum requirements:

- Server Development
  - Intel Pentium II processor
  - 256 MB RAM minimum
- Java/Web/WebFacing Development
  - Intel Pentium II processor minimum; Pentium III 500 MHz or higher, recommended
  - 512 MB RAM minimum
  - 768 MB RAM recommended for running or debugging in Unit Test Environment
- Required hard drive space: 1650 MB
- Additional 700 MB of temporary hard drive space is needed during product installation.
- Windows: VGA graphics card (800 x 600, or higher, recommended, 256 colors)
- CD-ROM/DVD drive
- Mouse or pointing device
WebFacing Tool - no 5250 CPW on January 2003 models

January 2003 Models & Packaging benefits WebSphere and WebFacing

- **Model 800**
  - WebFacing does NOT require 5250 CPW workload
  - Standard & Advanced Editions include WAS-Express
    - Value Edition does NOT include WAS-Express

- **Model 810**
  - WebFacing does NOT require 5250 CPW workload
  - Standard Edition does not include WAS-Express
  - Enterprise Edition includes WAS-Express

- **Models 825, 870 & 890 (2497/2498)**
  - WebFacing does NOT require 5250 CPW workload
  - Standard Edition does not include WAS
  - Enterprise Edition includes choice of WebSphere Application Server
    - WAS - Express for iSeries *OR*
    - WebSphere Application Server V4 (single server) *OR*
    - WebSphere Application Server V5

**ALL Older iSeries Models Using WebFacing Tool Require 5250 CPW**
Notes: WebFacing: no 5250 CPW on Jan 2003 models

The WebFacing run time environment runs as a "WebFacing Server" (2 jobs) in subsystem QSYSWRK and the associated workstation job uses OS/400 Virtual Terminal support. This implementation, based upon processing the display files, enables the implementation to essentially replace standard OS/400 Work Station Data Management.

It is this implementation that enables the "WebFaced application" to not be considered a 5250 job. Other "refacing implementations" intercepts 5250 data streams after or before processing by OS/400 Work Station Data Management.

The 5250 jobs appear as normal Telnet jobs. It is this implementation that results in the refaced jobs to be counted at 5250 I/O by the system.
iSeries Access products
iSeries Desktop Solutions with iSeries Access Family

- **iSeries Access for Windows (5722-XW1)**
  - A leading Windows desktop connectivity alternative, includes iSeries Navigator
  - Enhanced to include new Personal Communications 5250 emulator - V5.5
  - Supports Kerberos, the emerging industry preferred method to authenticate users

- **iSeries Access for Web (5722-XH2)**
  - Browser based access to iSeries resources - applications and system screens
  - Easily customizable front page
  - Improve security, central administration
  - Includes 'My Personal Folder'

- **WebSphere Host Publisher 4.0**
  - Rapid Web-enablement of 5250 applications
  - Fully translated, including DBCS languages
  - Runs on WebSphere Application Server 4.0
  - Supported on OS/400 V5R1 and V5R2

- **iSeries Access for Wireless (5722-XP1)**
  - Integrated package of wireless middleware
  - Includes V5R2 version of Management Central - Pervasive
  - Includes IBM Toolbox for Java 2 Micro Edition (J2ME)

  - iSeries subset (5250 only) of "full function" cross platform Host Access Transformation Server
  - A web-to-host 5250 interface similar to iSeries Access for Web 5250 interface with additional customization
  - Can be upgraded to full function HATS at reduced price
This foil introduces iSeries Access Family (5722-XW1) "components" and focuses on those that can be part of an e-business solution.

Note that WebSphere Host Publisher is available as a separate product. In that packaging, it has some additional capabilities not available when available as an iSeries Access separately orderable feature.

WebSphere Host Publisher contains a powerful set of tools to integrated several different applications, database interfaces and workstation I/O interfaces into a single appearance to the workstation user.

iSeries Access for the Web can do simple "refacing of a 5250 applications" as well as define browser interfaces to such OS/400 facilities such as spool queues and messages.

You can also use iSeries Access for the Web with WDS WebFacing.

If you have a license to iSeries Access Family, 5722-XW1, you will be able to order HATS LE starting in June 2003.

The following foils expand on the capabilities of all these components under iSeries Access components.
Notes: iSeries Access Family - 2 -

This next set of foils discuss some functions available with the iSeries Access Family of products, 5722-XW1. The full set of functions are listed below:

- Part of XE1, which is included for no charge with base OS/400, except for the functions noted below:
  - 5250 display and printer emulation (additional cost)
  - Data Transfer (additional cost)
  - SSL to secure network connections
  - Key middleware such as ODBC, OLE DB, ActiveX Automation Objects, Wizards for developing Visual Basic applications, iSeries Toolbox for Java
  - iSeries Navigator
  - Operations Console
  - EZ-Setup

- iSeries Access for Wireless (5722-XP1)
  - Integrated package of wireless functions and middleware
  - Delivered with iSeries at no additional cost
  - Management Central-Pervasive
    - Functional enhancements for V5R2
    - Worldwide enablement
  - iSeries Toolbox for Java Micro Edition
    - Access the iSeries through Java classes running on the device
    - Write Java Toolbox applications with the customized look of an installed client
  - JDBC Micro Edition
    - Access DB2 on the iSeries from Java running on a wireless device
    - Write full-featured JDBC applications (transactions, stored procedures, Database triggers, ...)

- iSeries Access for the Web (5722-HP2)
  - Provides access to iSeries through a browser
  - Can access the iSeries system through 5250 emulation running to a browser
  - Can access database, integrated file system, printers, output queues
  - Can run batch commands, send/receive messages, work with jobs, create and send .PDF and .xml
  - Contains 5250-based subset of IBM Host Publisher functions

- WebSphere Host Publisher V4
  - Easily integrates existing host applications within industry-standard Web pages or WebSphere applications
  - Supports 3270, 5250, VT, and JDBC back-end data sources
  - Shields user from data source
This presentation discusses briefly the iSeries Access for the Web and iSeries Access WebSphere Host Publisher capabilities and HATS LE (with an overview of HATS "full" product capabilities.

The iSeries Access presentation in the April 2002 - October 2002 V5R2 Technical Overview presentation set contains more details on all the iSeries Access Family, 5722-XW1 products.
### iSeries Access for Web

**browser-based access to iSeries resources**

Included in the iSeries Access Family product

- 80% of iSeries customers purchase iSeries Access Family, thus have no-charge access to iSeries Access for the Web

Allows end-users to access all iSeries resources through a variety of browsers

- Internet Explorer, Opera, Netscape
- Any desktop operating system
  (Windows, Linux, Macintosh, UNIX,...)

Runs with:

- WebSphere Application Server, or
- ASF Tomcat powered by Apache (part of no-charge HTTP Server, 5722-DG1)

*Use 'out of the box'*

*No programming required*
iSeries Access for Web

A full-function solution for any iSeries customer...
Provides access to iSeries through a browser

- Can run 5250 emulation, access database, integrated file system, printers, output queues
- Can run batch commands, send/receive messages, work with jobs, create and send .pdf and .xml
- Can run concurrent with IBM WebFaced applications

It has the following advantages:

- Is server based, implemented using Java (tm) Servlet technology
- Is lightweight, requiring only a browser on the client, no applets installed on desktop
- No configuration required at desktop
- Uses industry standard protocols - HTTP, HTTPS, and HTML

Users can leverage business information, applications, and other resources of iSeries from any client desktop through a web browser...
Notes: iSeries Access for Web: the Intranet/Internet user

iSeries Access for Web was introduced by IBM in September 2001. It provides a browser interface to iSeries resources such as: DB2 UDB, printer output, and OS/400 CL commands. iSeries Access for Web is implemented as a set of Java servlets which run on the iSeries server. Only a browser is required on the client.

If your iSeries server is part of your company's Intranet, you can use iSeries Access for Web to provide access to your resources for others within your company. If your iSeries server is part of the Internet, you can use iSeries Access for Web to provide access to your resources for your customers and suppliers. In this case, you also need to provide your customers and suppliers with a user profile to access your iSeries server.

You can build a quick and easy web site for your company with the customization support of iSeries Access for Web. No Java programming is required. You simply create HTML files and set configuration options. In this article, I demonstrate this capability by creating a web site to sell boats. This information is based on the functionality available with the V5R2 release of iSeries Access for Web.

It offers web browser based access to iSeries servers. iSeries Access for Web enables end users to leverage business information, applications, and resources across an enterprise by extending the iSeries resources to the client desktop through a web browser.
iSeries Access for Web must be configured with a web application server and an HTTP server.

**Pure Java servlet-based access:** iSeries Access for Web is a set of servlets that run on iSeries servers as extensions to the HTTP server. It provides access to common user functions such as database, file, print, jobs, 5250 sessions, and messages on the iSeries server. It enables easy access to DB2 Universal Database for iSeries information through built-in SQL requests and has a simple interface to work with information in the Integrated File System, including file download and view capabilities.

**Industry-standard protocol:** iSeries Access for Web uses the industry standard HTTP and HTTPS protocols, and does not use any proprietary TCP/IP ports and protocols. Firewall issues are much more manageable as a result.

**Lightweight Access:** The intent of iSeries Access for Web is lightweight and casual access to iSeries servers from a Web browser. Most of the iSeries Access for Web functions have minimal browser requirements and would work with almost any browser on any platform.

**Server-based:** iSeries Access for Web is entirely server based. There is no client code to install and manage. You simply install and configure it on the server and access it from any Web browser.

**Fully customizable:** iSeries Access for Web functionality can be restricted for users and groups of users. iSeries Access for Web is fully customizable. Object level security is used to validate access to OS/400 resources. Users and groups can only access resources to which they are authorized. What users see when connecting to the iSeries server is fully customizable by the OS/400 Administrator.

Host Publisher and Host Publisher Studio have been bundled with the 5722-XH2 iSeries Access for Web product to provide a complete web-to-host integration solution.
Tasks for the experienced iSeries user...

My Personal Folder

Print
- Printer output
- Printers
- Internet Printers
- Printer shares
- Output Queues

Database
- Tables
- My Requests
- Run SQL
- Copy Data to Table
- Import Requests

5250
- Start 5250 Session

Commands
- Run CL commands

Files
- Browse Files (in IFS)
- File Shares (in NetServer)

Messages
- Display Messages
- Send Messages
- Operator Messages
- Message Queue

Jobs
- User Jobs
- Server Jobs

Customize
- Administrator controls access to functions by user or group of users:
  - Customize front page
  - Limit tasks that can be performed

Everything runs batch except 5250
Notes: Tasks for the experienced iSeries user..

This foil summarizes the iSeries Access for the Web functions that can be defined to be accessed from a browser - by one who is experienced with iSeries functions.

The stars indicate V5R2 enhancement areas.
Modernize your iSeries and zSeries host applications and run them from a browser

A cross-server product
Why use WebSphere Host Publisher

Extend existing applications to the Web...

- Can take an existing full-function, in-house application and present only selected paths to Web users
- Works on system screens
  - Can Web-enable an iSeries interactive command (such as query a database file)
- Can add database functions to existing host application
  - Can access information from any relational database
- Can combine portions of multiple applications into a single Web view
  - 5250, 3270...
- Includes capabilities to control heavy Web use and large networks
  - Tools to enhance performance, failover when Web server not available, manage multiple servers from singe administrator console
- Cross platform development tool
  - Skills invested in Host Publisher can be used with zSeries and pSeries applications as well

Do not need source code
Notes: Why use WebSphere Host Publisher

WebSphere Host Publisher (WHP) provides a quick and easy way to implement e-business by extending the reach of mission critical applications to the browser, requiring no changes to the existing applications. It delivers:

- Host Publisher Studio delivers an easy to use wizard like interface for creating web to host Java Beans, EJBs, web pages and web services projects
- Via WebSphere Workload Manager delivers enterprise scalability
- Leverages J2EE to support the latest web development and deployment standards
- Provides portal support for integrating 5250 applications into IBM portal server
- Provides programmed navigation through legacy applications
- Extends access capabilities to include Java, JDBC and virtual terminal
- Can be used as a bean generator to connect new web applications to existing legacy applications
- Enables legacy application extension via industry standard web services
- Provides XML host access via generated beans as well as 5250 access via an XML gateway
- Capabilities to managed a large set of Host Publisher implemented applications, including failover should one of the nodes in the network fail.

Any skill invested on behalf of an iSeries system cam be utilized on several different supported operating systems, such as those running on zSeries servers and pSeries servers.
Included in the iSeries Access Family product

- 80% of iSeries customers purchase iSeries Access Family, thus have WebSphere Host Publisher

Streamline and enhance 5250 or mainframe applications (including system screens, host, or database applications)

- No change to back end applications -- don’t even need source code
- Enables multiple sources of data to be combined into a single Web page

Works with Internet Explorer or Netscape

- Any desktop operating system (Windows, Linux, Macintosh, UNIX,...)

Runs with:

- WebSphere Application Server 4.0 or later
Notes: WebSphere Host Publisher V4.0

WebSphere Host Publisher V4.0, running under WAS 4.0 or higher, offers a powerful set of application development functions and management of the application deployment.
WebSphere Host Publisher saves application rewrite

- Can expose selected paths of an existing application to a Web view
- Can change order and placement of application presentation

Your application does not change... just looks differently
Tasks for the inexperienced iSeries user

Access for Web can be the window ('portal') to your iSeries resources

Customize your front page to work with other iSeries resources (no programming required)...

- Give users ability to work with spool file, database, IFS, etc. without knowing anything about these actual functions
- Link to other programs, pages...

All with a click...
Notes: iSeries Access for Web Example

This shows an example of a view of a customized home page done with iSeries Access for Web. This home page demonstrates one way to implement each of the services listed. Often, there are multiple ways to accomplish a single task using iSeries Access for Web. You can find documentation on the supported URL interfaces at: http://www.ibm.com/servers/eserver/iseries/access/web/interface.

Key V5R2 capabilities used include:

- iSeries Access specifically developed 5250 interface
- 132 column support vs. 80 column
- Full use of keyboard (vs. using mouse for icon pressing)
- Ability to key in own workstation ID vs. strange TCP/IP id
- Easier to manage who is connected to system.
- Macros and keypads
- Tomcat support

View available boats - this uses Access for Web 'Database' functions to display the contents of a database table. The caption parameter identifies the customized table heading. The first link, View available boats, displays all available boats. The source for this link is:

```
<a href="/webaccess/iWADbView?table=BOATS.BOATS&caption=Available Boats">View available boats</a>
```

See boat details - this starts a traditional 5250 application. We use the iSeries Access for Web '5250 interface' to start a 5250 session with the iSeries server. The sessname parameter identifies a configured 5250 session containing connection, appearance, and behavior settings. The sessname parameter also causes a new session to start each time the link is chosen. If we omit the sessname parameter, this link reconnects to the most recently used 5250 session for the current user. If there are no active sessions for the current user, a new session is started. We use the initmac parameter to play a macro when the session is started. In this case, our macro signs onto the server and starts the 5250 application. If we don't want the signon information stored in the macro, we could have the end user sign onto the server and have the 5250 application start as the end user's initial program. To set the initial program, we use the change user profile command (CHGUSRPRF). In this case, we would also use the change system value command (CHGSYSVAL) to change the Display sign on information (QDSPSGNINF) system value to '0'. This prevents the signon status information from displaying before the initial program is started. The 5250 user interface is just one way to handle existing 5250 applications. Another option is to use a tool, such as IBM Host Publisher or IBM WebFacing, to transform the application into a modern web application. The source for this link is:

```
<a href="/webaccess/iWA5250?sessname=boat&initmac=startboat">See boat details</a>
```

Order a boat - provides a way for end users to enter information to place an order. We use iSeries Access for Web 'Database Table' insert to store the information. The source for this link is:

```
<a href="/webaccess/iWADbInsert?table=BOATS.ORDERS">Order a boat</a>
```
This Week's Special - shows a video clip of the boat featured for the week. We store the video clip in the iSeries integrated file system and use the iSeries Access for Web 'File' function -- file download support -- to display it. We could also add links to other images stored in the integrated file system, such as pictures of the boat's interior. The source for this link is: <a href="/webaccess/iWAFileDownload?filepath=/boats/carver.mpg">here</a>

Great Deals - displays information about all boats priced under $75,000. We used iSeries Access for Web 'Database' function. In preparation for building this link, we used the SQL Wizard to build a query to retrieve all boats costing less than $75,000 and order them by increasing price, then saved this request. Then when the user clicks on the link, this saved database request is run and returns the current results of the SQL query - which is a subset of the contents of a database table.

Site Support - this link provides a way for an end user to submit comments and questions. We used the iSeries Access for Web 'Message' support to send the messages. You could have someone monitoring these messages or it could have an application processing them. The source for this link is: <a href="/webaccess/iWASendMessage">Send us a message</a>

Weather Conditions - this link does not use any iSeries Access for Web support. It is part of this example to demonstrate that home page content is not restricted to iSeries Access for Web functions.
Work with invoices - this link displays current customer invoices. To implement this, we use iSeries Access for Web 'Printer output' support to display all spooled files in an output queue. We also use the customize support to limit the columns displayed and the actions available. The only available actions we use are TIFF and PDF. We use the TIFF action to view invoices. We use the PDF action to mail a PDF version of the invoice to the customer.

Check messages - this link displays questions and comments sent by customers. To implement this, we use the iSeries Access for Web 'Message' support to display the contents of a message queue.

Check system messages - this link displays iSeries system operator messages. To implement this, we use the iSeries Access for Web 'Message' support to display messages in the QSYSOPR message queue.

Administrator tasks - this link shows the list of commonly run tasks. To implement this, we use the iSeries Access for Web 'Command' support to display the list of saved commands. In this case, we saved a command to backup the contents of the BOATS library. We can use the prompt action to view or change the command parameters. In our case, we submit the command as a batch job since it could take a long time to complete.

Manage incoming items - this link shows items needing the administrator's attention. For this link, we use the iSeries Access for Web 'My Folder' support to display items in the administrator's folder. In this case, we have the results of a database query for detecting low inventory.

Monitor jobs - this link displays the administrator's active jobs. For this link, we use the iSeries Access for Web 'Job' support to show active jobs for the current user. If we submitted the save library command as a batch job, we could use this link to monitor the status of the job. We could also use the customize function to switch the type of jobs in the list from active to another status, such as complete.

As you can see from this example, iSeries Access for Web provides a wide scope of functionality and it offers a great deal flexibility with the customization support built into the product. You can use this support to quickly and easily build a web site to fit your company's needs.

For more information on iSeries Access for Web, see the product web site at: http://www.ibm.com/servers/eserver/iseries/access/web/.
Start simple, grow fast with iSeries Access for Web...

- Your 5250 applications continue to function as they always have...
- Use built-in 'macro' support to skip second OS/400 signon screen and immediately bring up application.
- Or modernize your applications with WebFacing, Host Publisher...and use Access for Web as your 'window'.

No programming required to make all your screens look like this.

A sample RPG program..
Notes: Run 5250 applications example

This foil is just an example window from the set of functions that can be clicked that bring up a 5250 application that searches for boats that match the search input data.
Host Publisher Components

**Host Publisher Studio**
Win98, WinNT, Win2000, WinME, WinXP,

**Host Publisher Server**
iSeries

**Development Environment**

**Runtime Environment**

**Runtime Infrastructure**

**IBM WebSphere web application server**
Notes: Host Publisher Components

The main components to run Host Publisher are listed below.

**Development Environment**
- Creates reusable Host Integration Objects that encapsulate host interactions and data retrieval
- Generates fully customizable Web pages
- Uses task oriented, graphical user interface

**Runtime Environment**
- Provides session management, license monitoring, run-time administration, load balancing and log and trace management
- Supports SSL encryption and DES encrypted passwords
- Supports integration with other IBM connectors

**Runtime Infrastructure**
- Provides advanced runtime environment for Host Publisher Server and Host Publisher applications.
- Prerequisite but not a part of Host Publisher.

**Note:** The XML Gateway is no longer integrated as the 5250 interface for iSeries Access for Web, as iSeries Access for Web V5R2 provides an integrated 5250 interface. The XML Gateway, however, is required for Host Publisher Host Access.

The XML Gateway may still be configured with iSeries Access for Web, as a 5250 interface. Refer to the following publications for details of the installation of the Host Publisher Server and configuring the XML Gateway with iSeries Access for Web.

- Redbook *iSeries Access for Web V5R2 and WebSphere Host Publisher V4.0*, SG24-6804
- IBM WebSphere Host Publisher V4.0
- *IBM WebSphere Host Publisher Planning and Installation Guide, SC31-8734*
- *IBM WebSphere Host Publisher Administration and Users Guide, GC31-8728*

This is achieved by using the `-iwa` parameter on the `cfgHPsvr` command. This parameter allows Host Publisher to obtain an iSeries Access license from the license component of the iSeries Access Family product (5722-XW1).
IBM WebSphere Host Publisher Application Development Workshop

- Course Code: SW 910
- For schedule information, call 1-800-IBM-TEACH (426-8322)

'Building A Java Adapter Over a 5250 Application to enable B-B transactions' article

- An example of taking an interactive 5250 order entry application running on an iSeries machine, and making it accessible via a web browser
  http://www.iseries.ibm.com/developer/java/topics/hostpubadapter.html

WebSphere Host Publisher QuickStart Services

- A comprehensive suite of services to assist customers with the installation and customization of Host Publisher
  - Installation & Connectivity Module - 3 days
  - Host Publisher Workshop Module - 5 days
  - Host Publisher Remote Consulting Module - 40 hours

Programmer's Guide

- On Host Publisher Studio CD

PartnerWorld for Developers workshops

- See Web page for next workshop
Host AccessTransformation Server (HATS) and HATS Limited Edition (LE)
Host Access Transformation Server (HATS)

- Web-to-Host emulator
  - Zero-footprint, zero-download
  - Only needs a browser on the client
  - Supports 3270 and 5250

- Rules-based transformation engine
  - Fast deployment:
    - No programming skills required
    - No customization needed
    - Can record I/O flow to help user build the 5250/3270 data stream conversion browser interface

- Real time conversion of 5250, 3270 interface

- Enabled extensions to include legacy applications in WebSphere Portal Server and (based upon J2EE) significant customization and integration of legacy applications

- Full functions HATS Studio runs as a tool kit plugin to WebSphere Studio Site Developer, WebSphere Application Developer

Included with Host Integration Solution bundle
Notes: Host Access Transformation Server (HATS)

Host Access Transformation Server (HATS) makes 5250 and 3270 applications available through the web browser while converting your host screens to a web-like look and feel. It is a zero footprint product - only the browser is required on the client.

HATS:

- Extends 5250 and 3270 applications to a web browser
- Converts host screens dynamically on the fly
- Employs and advanced, rules based transformation engine, making it unnecessary to customize each screen
- Exploits the scalability and security of WebSphere Application Server
- Delivers HTML directly to the desktop without client code or download
- Enables legacy content integration with WebSphere Portal Server
- Provides an open, extensible J2EE architecture that allows unlimited customization and integration of legacy applications

HATS is available through the Host Integration Solution bundle.

HATS and Host Publisher all have more capability to extend the web GUI than iSeries Access for the Web. HATS and Host Publisher can use normal flow or can be used to modify the screen flow. They have recordable, programmable scripts that allow users to navigate applications in ways programmed by developers that will alleviate the end user having to understand the flow of the screens. This is especially helpful for Internet deployment to users that have no background at all in how the application is used.

HATS uses a rules based engine for converting screens so a low skilled developer or even an end user can define how to handle specific aspects of the screen conversion for consistency.

HATS, Host Publisher and WebFacing all provide fairly sophisticated application of style sheets that supply a very nice GUI presentation. Some of the same kinds of end results can be accomplished easily with iSeries Access for the Web (displaying the company logo on the web forms for instance).

HATS Studio is the workstation component that can be used for "advanced adjustment to your application's 5250 or 3270 screens. Run time deployment is with a server system running a WebSphere Application Server. HATS can be distributed as part of the WebSphere Host Integration Solution. A HATS LE - "Limited Edition" version of the product will be available in iSeries Access in June 2003. HATS LE has a subset of the full function HATS, such as supporting only 5250 data streams and not having the HATS Studio function. If you are using HATS LE, you can later upgrade to the full HATS server outside of iSeries Access. From an iSeries view, HATS provides a noninvasive tool for easily rendering 5250 applications to a high quality browser GUI without programming.

Note: The iSeries exclusive HATS LE was previously referred to as HATS Express. The product’s formal name is HATS Limited Edition. This section of the presentation is focusing on the full function HATS.
Host screens are converted to GUIs on the fly, in real time
- On-the-fly screen conversion using the rules-based transformation engine. HATS does not "break down" when changes are made to the host application.

Easy Web-to-host first step
- Default rules allow your host application to be on the Web within hours of loading the software. There is no requirement for programming skills, and there is no need to customize every screen. If further customization is required this can be done at the customers own pace.

Eliminates need to customize every screen
- Due to the rules-based transformation engine not all screens require customization, and when changes are made to the host application HATS will continue to work without modification.

Low skills requirement
- HATS Studio, which plugs in to the Eclipse-based WebSphere Studio, is an easy to use wizard-based environment for converting host screens to a web-like appearance and functionality. No programming skills are required.

Preserves existing application flow
- HATS does not require any changes to the Host Application.

Rules-based, customizable
- HATS Studio provides easy-to-use wizards for customizing how host components are displayed. Use the WebSphere Studio or any industry-standard HTML editor to add: logos, graphics, backgrounds, Web links and other HTML elements.

Customizations are saved as reusable rule sets that can be applied to any host screens that share similar requirements.
- HATS can apply: an individual rule set to each host application; different rules sets to a single host application for different end user communities; the same rule set to multiple host applications.

"Near" load-n-go implementation
- Default rules allow your host application to be on the Web within hours of loading the software.

Zero footprint on the desktop
- Only software needed on the client is a Web browser, which provides support for 3270 and 5250 hosts.

Virtually unlimited functionality
- Adding customization by using Macros, Global variables, Tabbed folders, Graphs, Java Widgets (e.g. calendar, calculator).
- Open J2EE architecture allows virtually unlimited flexibility and extensibility.

The standard HATS application model dictates that all configuration is done in the HATS Studio (a plugin to WebSphere Developer Studio). Once configuration has been completed in the Studio, the application is assembled into an enterprise application and can be installed on a WebSphere Application Server, and once it is started, it can begin to service clients.

HATS "full function" is available exclusively as a part of the WebSphere Host Integration Solution. See the next set of foils for "HATS Limited Edition functions, only available on iSeries."
The full HATS product is shipped as part of the Host Integration package and is supported as follows on the different operating systems:

- Coming 2Q 2003: Linux, zLinux
- Coming 4Q 2003: zOS
HATS - Limited Edition

- **Subset of HATS**
  - Converts 5250 screens on the fly, in real time, to a point-and-click Web interface
  - HTML templates included or can use customer provided HTML
  - No programming required
  - Runs entirely on iSeries server, no PC workstation component

- **Packaging**
  - HATS - Express included with iSeries Access Family (5722-XW1) starting 6/30/2003
  - Customers with 5722-XW1 can order chargeable upgrade to full HATS offering

A quick and easy way to put iSeries applications on the Web - exclusive to iSeries

Available June 2003
Notes: HATS Limited Edition

Part of iSeries Access Family - 5722-XW1

Available 6/30/03
- Will automatically ship with new orders for 5722-XW1
- Existing 5722-XW1 customers can order no-charge Feature number to receive HATS - Limited Edition in iSeries Client Access Family

Requires WebSphere Application Server V4.0 or V5.0
- Supports WAS V5 - Express for iSeries

Supports Internet Explorer and Netscape browsers

Provides host keyboard support

Supports Secure Sockets Layer (SSL) security

Converts 5250 screens to a point-&-click Web interface
- Delivers HTML to the desktop
- Only software needed on the client is a Web browser

Works on all 5250 screens
- Use customer-provided HTML or stock HTML templates included with product

Screens are converted on the fly, in real time
- Selection lists can be converted to hot links, buttons, drop-down menus, or option lists (radio buttons)
- PF keys are can be converted to buttons or hot links
- Enables legacy application integration with WebSphere Portal Server, optional extensible customization with no application changes

No programming necessary
- Does not break if changes are made to 5250 application
- No need to access source code

Note: In the IBM eServer iSeries Sales Kits, under the e-business category of deliverables, you can find the document - Tools of e-business, volume 1: positioning IBM products -- January 2003. This provides an objective comparison of the various IBM tools available to "reface" 5250 applications to browser interfaces.

The following are direct links to the iSeries January 2003 Sales Kit information:
- Server Sales->
  http://w3.ibm.com/sales/systems/ibmsm.nsf/MainFrameset?OpenForm&cdoc=imastersk
- Global PartnerInfo: ->
### iSeries Access Family - Packaging of LE, Host Publisher

<table>
<thead>
<tr>
<th>V5R2 5722-XW1 iSeries Access Family</th>
<th>V5R1 5722-XW1 iSeries Client Access Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 5722-XE1, V5R2 iSeries Access for Windows</td>
<td>• 5722-XE1, V5R1 AS/400 Client Access Express for Windows</td>
</tr>
<tr>
<td>• 5722-XH2, V5R2 iSeries Access for Web</td>
<td>• 5722-XH1, V5R1 iSeries Access for Web</td>
</tr>
<tr>
<td>• 5724-B81, V4.0 WebSphere Host Publisher</td>
<td>• 5648-E25, V3.5 WebSphere Host Publisher</td>
</tr>
<tr>
<td>• Starting 6/30/2003 HATS Limited Edition</td>
<td>Customers with Software Subscription can get V5R2 clients by ordering no-charge Feature No. 2645 of Product No. 5722-XW1</td>
</tr>
</tbody>
</table>

After 6/30/2003, current V5R2 customers can get version of Host Publisher that runs on WAS V5 and HATS LE by ordering no-charge Feature No. 2646 of Product No. 5722-XW1.

After 6/30/2003, current V5R1 customers can get version of Host Publisher that runs on WAS V5 and HATS LE by ordering no-charge Feature No. 2646 of Product No. 5722-XW1.
Notes: 5722-XW1 and Packaging of LE, Host Publisher

With June 2003 availability, HATS LE will automatically ship with new orders for 5722-XW1.

Existing iSeries Access Family customers (at V5R1 or V5R2) can order no-charge Feature Number 2646 of 5722-XW1 to receive HATS LE.
HATS LE: Real-time Screen Conversion

HATS LE on-the-fly conversion using customer-provided HTML (logo and graphics)

Traditional green screen

Drop-down menu
HATS LE will be delivered in the form of a J2EE enterprise application. Once it is installed/configured/started on the iSeries, web browser clients will be able to connect to a URL and start using it.
HATS LE Server requirements

Server Requirements

HATS LE is designed to run on any platform supported by HATS V4, however, testing will be limited to iSeries only. The following application servers are supported:

- WebSphere Application Server Advanced Edition 4.04 and higher
- WebSphere Application Server Advanced Edition Single Server 4.03 and higher
- WebSphere Application Server Version 5.0
- WebSphere Application Server Version 5.0 Express

Client Browser Requirements

Clients connecting to HATS LE will have the same browser requirements as those users connecting to a standard HATS application:

- Netscape 6.0 + and IE 5.0 +
- Netscape 4.72 (no keyboard support)

HATS LE administrators will have the same browser requirements as client browsers connecting to the application.

Internationalization

- GB18030 phase 1 certification.
- Support for all languages and code pages at runtime.
- BiDi support
- DBCS characters will be supported in the customization wizard as well as connecting to DBCS codepage host applications.

The web- accessible Administrative Console, and Configuration Wizard will be translated into the following Group 1 languages:

- English
- French
- German
- Spanish
- Italian

Portlet Support

HATS LE does not run in the WebSphere Portal Server. Customers will need to upgrade to HATS to take advantage of this feature.

Online Help and Documentation

The following online information will be provided:

- Readme/installation. PDF and HTML. Translated
- Online help for wizard/dialog panels. HTML Translated.

Online help will be available on all pages of the Configuration Wizard and, the Administrative Console, and the Application Builder. Context sensitive help will not be supported (as it currently exists in the HATS Studio) because this concept is not consistent with normal web-based applications. A link on each wizard panel will open online help for that panel in a new window. A readme file, specific to HATS LE will be available to the administrator in the Administrative Console and to the user prior to installing the product.
The Administrative Console can be accessed by navigating to 
http://<servername/port>/HATSLE/admin
Notes: Administrative console

This is the default page shown for Administrative Console. The administrator using either the Administrative Console or the Configuration Wizard will be prompted to enter a user name and password, and must have "SECADM" authority associated with his/her account.

The overview page is the first page displayed to the administrator when they enter the console. This page will:
- Show the status of the application (inactive/active)
- Allow the administrator to change the status of the application
- Show when the application was started
- Show the current number of active connections
- Show the peak number of active connections (and the date/time when that occurred)
- Show host connection settings (IP address, port, etc.)

Configure - the Configure section will allow the administrator to configure the application; (using the Configuration Wizard). The Configuration Wizard will be launched in the right-hand side of the Administrative Console window.

Manage Connections - the Manage Connections section will allow the administrator to manage all active connections to the application. This page will:
- Show all active connections (in the form of a sortable table)
- Show when each connection started, how long since the connection was used, the IP address of the client, and the internal name of the session, the name/version of the browser the client has connected with, and the workstation ID of the connection.
- Allow the administrator to view the current host screen of the user
- Allow the administrator to terminate (stop) the session for one or more active connections

Advanced - the Advanced section will allow the administrator to configure more advanced settings of the application. This includes:
- Editing the application.hap (for tweaking purposes)
- Editing a selected template
- Exporting the application (for importing into HATS)
HATS LE Configuration wizard

Configuration Wizard

- A web-based tool to enable the administrator to configure HATS LE

Steps that need to be performed are:

- Set up connection settings
- Define default template to be used
- Set up default transformation settings, such as:
  - Converting PF keys into buttons
  - AS/400 subfile support
  - Color remapping
  - Other minor enhancements
The Configuration Wizard is a web-based wizard used to configure and prepare the HATS LE for use by clients. The administrator can access the Configuration Wizard directly by:

- Navigating to the URL http://serverName/HATSLE/config
- Clicking the "Configure" option in the Administrative Console, or by
- Navigating to the URL http://serverName/HATSLE/entry before the application has been configured.

The first time HATS LE is accessed (or before it has been configured), a log-in page will be displayed. The administrator will need to supply a user name and password before beginning configuration. After the administrator has successfully logged in, a Welcome page will be displayed to inform the administrator that he/she is about to begin configuring the application.

The Configuration Wizard is the main functional component of HATS LE, and all configuration takes place after the enterprise application has been installed on the application server, but before it can begin servicing clients, it needs to be configured. The main objective of the wizard is to quickly and easily capture the needed information to get the application in service. The wizard is easy to understand and interact with and provides enough flexibility to make it useful.

Steps to be performed by the administrator in the Configuration Wizard:

- Configure host connection parameters.
- Select a default template, choose whether to show application or host keypads, and select whether to enable browser keyboard support.
- Configure default transformation settings.

The Configuration Wizard has navigation buttons (e.g., Next, Back, and Finish buttons) along the bottom of each page which allow the administrator to navigate between pages of the wizard. The navigation buttons will appear at the bottom of the wizard as needed. For example, the "Next" button will not appear on the final page of the wizard because there are no further steps to complete. These buttons will be enabled/disabled depending on whether the developer has supplied enough information to continue. Validation of form values supplied by the administrator will be performed only on the server when the page has been submitted (either by clicking "Next", "Back", or "Finish"). The administrator will not be allowed to continue on to the next step until the current step has been successfully validated.
Connection Settings

- **Host name**
  - Put the iSeries name in here that you want users to connect to. Doesn't have to be the system where WAS or HATS LE is running.

- **Port**

- **Code page**

- **Workstation ID**
  - Server assigned (default)
  - Set to a value
  - Set from an HTTP session variable
  - Prompt user

- **Security - SSL**
The first step of the Configuration Wizard is to ask the administrator to supply the host connection parameters. These settings define which host server the user connects to when he/she accesses the HATS LE. The administrator needs to supply the host name (or IP address) of the host system (a default value of "localhost" will be prefilled in this field), the port number (a default value of "23" will be prefilled in this field), and the code page. The administrator also needs to select how HATS will gain the workstation ID for each connection when that connection is initiated. The three options are:

- **Server assigned (default)**
- **Set to a value** - this value can either be a hard-coded string (not recommended) or a string containing HOD-supported workstation ID wild cards and characters (see the HOD documentation for more information).
- **Set from an HTTP session variable** - a variable containing the workstation ID may have already been supplied (or calculated) in another JSP or servlet in the application, this option allows the developer to use this variable’s value as the workstation ID for the connection.
- **Prompt user** - ask the user to supply a workstation ID when he/she starts the application. A web-based dialog will be displayed to the user on application start prompting him/her for his/her workstation ID. The value supplied by the user will be stored as a cookie on the client browser and used to pre-fill the dialog on the next connection attempt. This dialog will be displayed in the preferred language of the client browser (unless that language is not supported).

The administrator also has the option to allow or not allow the user to supply a workstation ID in the URL (by supplying a value for the "workstation ID" parameter). If this option is on, a supplied workstation ID in the URL will override any value (or configuration option) supplied by the administrator. For example, if the administrator has chosen to prompt the user for a workstation ID, but the user supplied a workstation ID in the URL, the user will not be prompted to supply a workstation ID, and the value in the URL will be used to initiate the connection.

The administrator can also select whether to enable SSL (secure sockets layer) security between the host server and the application server (if applicable). If SSL is enabled, the administrator can supply an optional security certificate.

Once all fields on the page have been filled in with valid values, the administrator is allowed to continue onto the next page. At this point, all required information will have been gathered from the developer and the Finish button will become visible. The administrator can choose to continue configuring the application or proceed to using the application.
HATS LE - set up screen background

Templates included in HATS LE

- Blank
- Classic Terminal
- Corporate Banner
- One that looks similar to one provided with iSeries Access for Web

Keypads, keyboard functions
The second step of the Configuration Wizard is to ask the administrator to select a default template, or look, for the application. The following templates will be provided:
- Blank
- Classic Terminal
- Corporate Look
- One that looks similar to iSeries Access for Web

Selecting a template in the list will cause a thumbnail preview of that template to be displayed. The administrator can tailor such things as the company name, company logo. The administrator can also edit the JSP source of the template from the web to provide better consistency with current web applications. The feature will not be made available in the wizard, but only shown in the Administrative Console.

The administrator can also choose whether to show the application keypad and host keypad, and whether to allow end users to use their keyboards (when using a compatible browser) to interact with the host system (i.e. support for function keys and other designated key combinations). Detailed configuration of the application and host keypads will not be made available in this wizard. By default, the application keypad, host keypad, and keyboard support options will be enabled.

Once the administrator selects a template, it can then be customized (if it has any customizable options) and previewed. Clicking the "Preview" button will show a preview of the template in a new browser with a sample host screen; to quickly see how the template will appear to the end user. Clicking the "Configure..." button will show the "Configure Template."
Customizing a template

Use the 'Corporate' Template to look more like your current Corporate Site

Set up your:
- Company name
- Logo
- Corporate Links
- ...
Notes: Previewing and customizing a template

Each template shipped with HATS LE has a set of configurable settings (the size of this set depends on the complexity of the template). This will give the administrator the ability to customize the look of HATS LE. Special JSP tags in the templates will be read at design time and a dynamic page of options will be displayed to the administrator.

An example of this JSP tag is as follows: `<HATSLE:Template name="COMPANY_NAME" description="%company_name" type="String" defaultValue="My Company Name" configurable="true" />`

The tag consists of these attributes:
- `name` - the internal name, or key, of the attribute name (non-translated). Required.
- `description` - the translated string displayed to the administrator during configuration. A description value preceded with a "%" will be looked up in an appropriate translated resource file. Required.
- `type` - the type of the value. Valid values include String, Image (gif/jpeg supported), Link List, and Stylesheet. Not required. Default value is "String".
- `defaultValue` - the default value used if no value is specified by the user OR if the "configurable" flag is set to false. Not required. Default value is "".
- `configurable` - a flag used to determine whether the administrator is given the ability to modify the value of this configurable option in the Configuration Wizard. Not required. Default value is "true".
Transformation features include detection of:

- Function (PF) keys on the host screen
- Selection lists
- Tables
- Subfile rendering
- Preserves Field colors

Can also configure:

- What determines a PF key on the host screen (i.e., delimiters, etc.) and how those PF keys will be rendered (either as buttons or links).
- How to display selection lists (i.e., button, button table, pulldown list, link, option list)
An end user connects to HATS LE by navigating to a URL: http://serverName/HATSLE/entry or simply http://serverName/HATSLE
Notes: Configuring Default Transformations

The third step of the Configuration Wizard is to customize how HATS LE will appear to the end user. The administrator can turn on/off automatic detection of certain host screen components. Default transformation features in a HATS Limited Edition application:

- Automatic selection list rendering
- Automatic detection of PF keys on the host screen
- Automatic subfile rendering
- Automatic table detection

Any or all of these features can be turned off by the administrator. The administrator can also configure different properties for each feature. For example, ability to configure what determines a PF key on the host screen (i.e., delimiters, etc.) and also how those PF keys will be rendered (either as buttons or links).

HATS Limited Edition will take advantage of the default screen transformation technology already available in HATS. The set of options for default transformation in HATS LE will be smaller than the set currently in "full HATS" V4. The set of options is smaller because HATS Limited Edition is specifically targeting 5250 host applications which are generally more consistent in nature than mainframe hosts.

Connecting to the Application

The final interactive step of the Configuration Wizard is to allow the administrator to view the settings -- this includes host connection parameters, default template, customization settings, etc. The administrator can then accept these settings by clicking the Finish button. This will save the changes to the appropriate files. The administrator then chooses whether to activate HATS LE. It cannot be accessed by client browsers until it is activated. This option will be turned on by default. Once the administrator clicks Finish, HATS LE will connect to the host and start; and the administrator will be presented with the signon page (presumably) of the host system.

Once the administrator has configured HATS LE, an end user can connect to the application by navigating to the URL, http://serverName/HATSLE/entry or simply http://serverName/HATSLE.

If HATS LE has been activated by the administrator, the user will see the first host screen on the configured host (assuming the connection parameters supplied by the developer were correct).
Summary of differences between HATS and HATS LE
HATS compared to HATS LE

Features in both HATS and HATS LE
- Default host screen transformation
- Configuration of host connection settings
- Ability to choose a standard template
- Ability to turn on/off application and host pads
- Keyboard support

Features in HATS, not in HATS LE
- HATS Studio on workstation
- Customize individual screens
- Play and record macros
- Add tabbed folders and graphs
- Store and retrieve global variables
- Integrate with WebSphere Portal
- Skip and combine screens

Customers with 5722-XW1 will be able to order a chargeable upgrade to full HATS offering
Consider iSeries Access for Web 5250 interface compared to HATS 5250 interface
Differences - iSeries Access for Web and HATS LE

Access for Web 5250 interface

- **If using many other Access for Web functions**
  - Can select 5250 or other functions from the Navigation Bar -- more straightforward to simply use the 5250 tab for your 5250 emulation needs.

- **Can customize by user/group of users**
  - 5250 emulation GUI and keypads can be customized for specific users or groups of users - whereas HATS LE's configuration applies to all users connecting to that instance of HATS LE.

- **Can connect to multiple iSeries**
  - End user can easily configure multiple 5250 sessions to multiple iSeries servers. Administrator must set up HATS LE to enable users to access multiple iSeries servers.

- **Includes Macro support**
  - The macro support can be used to eliminate the entering of repetitive commands or even bypass the second sign-on screen. HATS LE has no macro support.

- **Better Browser Back/Forward control**
  - Access for Web ensures that users do not get out of sync with their OS/400 applications when using the browser back and forward buttons. HATS LE requires the administrator to insert a script into the HATS application template to disable use of the browser Back button to avoid unpredictable results.

HATS LE 5250 interface

- **Better is only want 5250 session**
  - If the only function you want to make available to users is 5250 emulation, then it would be easier to use HATS LE as that is all the only function it provides, and its Configuration Wizard is easy and quick to set up.

- **One customization applies to all users**
  - You only need to go through the customization once and it applies to all users of HATS LE.

- **Rules-based transformation capabilities provide a more enhanced GUI-look**
  - For example, all system screens and application screens can have drop down lists. HATS LE can detect selection lists and tables and provide an enhanced GUI look not possible with Access for Web 5250 emulation.

- **Function Keys work with Netscape too**
  - HATS LE enables Netscape users, as well as Internet Explorer users, to work with keyboard Function keys, etc., while Access for Web only supports use of PF and page up/down keys when using Internet Explorer.

- **Templates included**
  - Sample templates included, and are easy to modify.
The iSeries Access Family (5722-XW1) now provides two unique ways to start a 5250 session to an iSeries.

1. Access for Web (Product 5722-XH2, refreshed in V5R2, and runs on both V5R1 and V5R2 iSeries servers) now includes a new, integrated, and improved 5250 interface function.
2. HATS LE offers 5250 interface that is quick and easy to set up and define.

Although you may see the phrase "5250 emulation" in descriptions of these products, we prefer the phrase "5250 interface." This is because while the products may emulate most 5250 functions, neither can be considered "full emulators" in that some application I/O sequences or specific 5250 functions, such as "erase all unprotected" cannot be fully emulated unless some function is implemented on the workstation itself, typically as Java applets within the browser. The IBM Host on Demand product and similar products doing "browser extension functions" on the workstation can more completely emulate the 5250 functions.

However, in most existing 5250 application environments, the iSeries Access for Web and HATS LE 5250 interface functions are sufficient in getting your 5250 application up and running productively with a basic browser interface. Consider the following: to help you make the choice for your particular application environment.

**Access for Web**

- iSeries Access for Web provides many functions in addition to 5250 emulation, i.e., work with spool files, printers, database, IFS, commands, etc. HATS LE provides 5250 emulation only -- no other functions.
- So this comparison is just of the 5250 "emulation" set of functions.

**Access for Web 5250 "emulation"**

- If you're using the Access for Web default menus and its Navigation Bar, where the 5250 tab is included, it is probably more straightforward to simply use the 5250 tab for your 5250 emulation needs.
- Access for Web 5250 emulation GUI and keypads can be customized for specific users or groups of users - whereas HATS LE's configuration applies to all users connecting to that instance of HATS LE. Thus, Access for Web provides the flexibility of enabling users to make different choices for their GUI look.
- Access for Web 5250 emulation allows an end user to easily configure multiple 5250 sessions to access multiple iSeries servers. HATS LE would need to be deployed and running in multiple instances of WAS to enable users to access multiple iSeries servers.
- Access for Web 5250 emulation provides macro support; HATS LE does not. The macro support can be used to eliminate the entering of repetitive commands or even bypass the second sign-on screen.
- Access for Web ensures that users do not get out of sync with their OS/400 applications when using the browser back and forward buttons. HATS LE requires the administrator to insert a script into the HATS application template to disable use of the browser Back button to avoid unpredictable results.
Access for Web 5250 "emulation" continued

If the only function you want to make available to users is 5250 interface, then it would be easier to use HATS LE as that is all the only function it provides, and its Configuration Wizard is easy and quick to set up.

You only need to go through the customization once and it applies to all users of HATS LE.

However, if you had multiple iSeries servers you would like to have users connect to, or you would like a different look for some users versus other users, then you need to do some additional steps.

The first alternative would be to create multiple instances of WAS on the iSeries server and deploy HATS LE to each of those instances and configure each deployment to connect to a different iSeries server. From the end user view, they would need to specify a different port in the browser URL because each instance of WAS that was created would use a different HTTP server... which requires a different port.

The second alternative is set an override within the HATS LE configuration file (application.hap). It can be updated with an override value like this:

```xml
<class name="com.ibm.hats.SessionOverride">
  <setting name="#host" value="true"/>
</class>
```

The "host" setting allows you to pass in the name of the server to connect to. The browser URL would look like this:

```
http://<servername>/HATSLE/entry?host=<servername to connect to>
```

So from one deployment, update application.hap file, the user can connect to different iSeries servers.

Note: Setting this override value is not surfaced in the HATS LE configuration wizard GUI so it can only be done by updating the application.hap configuration file.

HATS LE, with its rules-based transformation capabilities, can provide a more enhanced GUI-look for system screens as well as host applications than the Access for Web 5250 emulation function. For example, all system screens and application screens can have drop down lists. HATS LE can detect selection lists and tables and provide an enhanced GUI look not possible with Access for Web 5250 emulation.

HATS LE enables Netscape users, as well as Internet Explorer users, to work with keyboard PF keys, etc., while Access for Web only supports use of PF and page up/down keys when using Internet Explorer.
Combining use of HATS LE 5250 with Access for Web

- You could combine the use of the two products by using the Access for Web Customization functions. This would enable users to come to the Access for Web front page, and click on a link and transparently be switched to use the 5250 emulation program in HATS LE.
- Both HATS LE and Access for Web 5250 emulators use the OS/400 TELNET function - thus both require 5250 OLTP (interactive feature). All other functions of Access for Web, such as working with spool files, printers, database, running commands, etc., run batch.
Could combine the use these products...
Could include a link in here that started HATS LE and a 5250 application -- maybe on another system...

Site information

You know if you have any questions or if we can help you in any way. Address your message to BOATHELP. Send us a message

Weather Conditions

Is it a great day for boating? Check out today's forecast.

Great Deals

For those bargain-conscious among you, we have a large selection of new and slightly used boats for under $75,000. Whether you are planning on sailing in your backyard pond or navigating the mighty Mississippi we can meet your wants, needs, or desires.

View our selection of modestly priced boats.
## Main Features of IBM "refacing tools"

<table>
<thead>
<tr>
<th></th>
<th>iSeries Access for Web</th>
<th>HATS LE</th>
<th>Host Publisher</th>
<th>IBM WebFacing Tool</th>
<th>HATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web-enables existing Applications</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Based on Java Technology</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Presentation</td>
<td>HTML, JSPs, Servlets</td>
<td>HTML, JSPs, Servlets</td>
<td>HTML, JSPs, Servlets</td>
<td>HTML, JSPs, Servlets</td>
<td>HTML, JSPs, Servlets</td>
</tr>
<tr>
<td><strong>Runtime Environment</strong></td>
<td>WAS, ASF Tomcat</td>
<td>WAS</td>
<td>WAS</td>
<td>WAS</td>
<td>WAS</td>
</tr>
<tr>
<td>Supported Browsers</td>
<td>MS Internet Explorer 5.0 +</td>
<td>MS Internet Explorer 5.0 +</td>
<td>MS Internet Explorer 5.0 +</td>
<td>MS Internet Explorer 5.0 +</td>
<td>MS Internet Explorer 5.0 +</td>
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<tr>
<td></td>
<td>Netscape 4.7 (AIX, Linux) and 6.2 (Windows)</td>
<td>Netscape 6.0</td>
<td>Netscape 4.x or later versions</td>
<td>Netscape 6.0</td>
<td></td>
</tr>
<tr>
<td>Interactive Feature Required</td>
<td>No - unless using 5250</td>
<td>Yes</td>
<td>Yes</td>
<td>No - with V5R2 and new hardware</td>
<td>Yes</td>
</tr>
<tr>
<td>Supported Host Interfaces</td>
<td>5250</td>
<td>5250</td>
<td>5250, 3270, VT52, VT100, VT220</td>
<td>5250 - from DDS Source. Source must be available for each screen format</td>
<td>5250, 3270</td>
</tr>
<tr>
<td>Web-enables System Functions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No - limited support for selected commands in WDS V5</td>
<td>Yes</td>
</tr>
<tr>
<td>Feature</td>
<td>iSeries Access for Web</td>
<td>HATS LE</td>
<td>Host Publisher</td>
<td>IBM WebFacing Tool</td>
<td>HATS</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Host Application modernization</strong></td>
<td>No, other than runs in browser</td>
<td>No, other than runs in browser</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>SQL Database Access</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Code Changes Required</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No - although may choose to optimize for the Web</td>
<td>No</td>
</tr>
<tr>
<td><strong>Programming effort to convert host interface to Web interface</strong></td>
<td>None</td>
<td>None</td>
<td>Using Studio: 1. Record host screen navigations and create I/Os that encapsulate those navigations. 2. Build JSP pages that require I/O input and render I/O output</td>
<td>None - unless DDS keywords are not supported by WebFacing</td>
<td>Two methods: 1. default parameters - no pgm-ing effort 2. customization - tracing application execution path, defining rules</td>
</tr>
<tr>
<td><strong>Customization</strong></td>
<td>Can customize what iSeries functions user can access</td>
<td>Customize screen look and keyboards</td>
<td>Yes - JSP pages can be customized, and I/Os can be reused in a WAS application (Servlet, Web Services, EJB)</td>
<td>1. CODE designer 2. Cascading style sheets 3. Web Tools</td>
<td>1. Web Tools</td>
</tr>
<tr>
<td><strong>Allows exposure of Java artifacts to other tools</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No - may create Java extensions to the application</td>
</tr>
<tr>
<td><strong>Merge/split of application screens</strong></td>
<td>No</td>
<td>No</td>
<td>Yes - handled by macro recorder</td>
<td>Yes -with programming changes</td>
<td>Yes - handled by macro recorder</td>
</tr>
</tbody>
</table>

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WebSphere MQ
WebSphere MQ (formerly MQSeries)

- Connects to any commercial system in business today
  - 35 different platforms (OS/400, Windows OS, AIX, z/OS, ... Unix, ...)
- Integrate more tightly with suppliers
- Important data is always delivered
- Share and leverage information between applications, especially WebSphere-based products

WebSphere MQ on iSeries

- **WebSphereMQ** = Message Oriented Middleware
  - Cross platform API to deal with messages & queues
  - Assured message delivery and transactional messaging (commit/rollback)

- **WebSphereMQ Integrator**
  - Reformats message data appropriately for receiver (based on format definitions)
  - Intelligently routes messages based on message format and content

- MQ Version 5.2 available
- MQI V2 available on IXS
- Conversion to WSMQ required
Notes: WebSphereMQ on iSeries

This foils summarizes WebSphereMQ on the iSeries, including base MQ and the Integrator components.
iSeries = Recognized as a leading enterprise Domino server

- "Out of box" functionality (mail, calendar & collaborative solutions)
- Ideal for companies with low/medium e-biz skills/resources
- Excellent ISV applications available today
- Domino 6 now includes "limited use" WAS Advanced V4 (single server) license

Optimized for collaboration and workflow

Optimized for distributed transactions and components
Each quarter there are new enhancements for more complete integration between Domino and WebSphere Integration.

Domino would be used for mail serving, collaborative processing and workflow management. WebSphere would be used more for distributed processing and transaction-oriented processing.

For information in the iSeries area, consider the following documentation:
- Domino and WebSphere Integration on the IBM eServer iSeries Server, SG24-6223, available in 2003
- What's New with IBM Lotus Domino 6 for iSeries, TIPS0064
- Lotus Domino 6 for iSeries Implementation, SG24-6592, to be available in March 2003
WebSphere Commerce

- Customize B2C & B2B catalog web sites
- Serious sell-side solutions integrated into existing applications
- Maximize revenues, improve customer service & extend reach worldwide
- Single store, multiple store, shopping-cart analogy

**Business-2-Consumer**

**Business-2-Business**

**WebSphere Commerce for web-based e-commerce Solutions**
IBM's WebSphere Commerce includes a suite of products that implement sophisticated e-business applications, for serious product selling and inventory management.

There are several separate WebSphere editions and sub components, such as content management information (to use as the base for personalization), secured payments across the internet. Editions are customized, for example, for Business to Customer (B2C), and Business to Business (B2B) as depicted on this foil and discussed on the next foil.

Here is a summary list of some of the functions available under WebSphere Commerce editions:

- **Merchandising**
  - Associations such as cross-selling, Up-selling, Accessories
  - Packages and Bundling

- **Rules based personalization**
  - Rules builder/engine
  - Product Recommendations

- **Auctions**
  - Open cry: bidder names and bids are published during an auction time period (price bid up)
  - Sealed bid: names and bids are confidential
  - Dutch: name and bids are published (price bid down)

- **Quick Order/Buy**
  - Multiple Lists
  - Scheduled Orders
  - Reorders

- **Business Integration**
  - XML messages
    - Order Create
    - Order Status Update
    - Product Quantity Update
    - New Customer
    - Update
    - Product Price Update
Notes: WebSphere Commerce -2

- Page Designer
  - WYSIWYG style tool
  - Drag and drop dynamic content into JSPs
- Store Creation Wizard
- Store Profile editor
- NC publish/deployment
- Catalog Architect
  - Distributed database support
  - Enhanced XML support
    - for packages and bundles, associations
  - NLV support
  - Integration with Studio and HotMedia design aids
    - Product Recommendations
- JSP Enablement for Catalog Display
  - Net.Data is still supported
- Mass Import - XML support
- LDAP Support
  - OS/400 Directory Services or
  - Domino for AS/400 R5.0 directory server
  - Distributed database support
- X.509 Certificates
WebSphere Commerce Overview

- Provides a framework for customers to establish effective, high-end B2B and B2C e-commerce web sites

**WebSphere Commerce Professional Edition (WCPE)**

- Advanced order & inventory management, business campaign management, integrated business intelligence & reporting, live help (via SameTime) & supports auctions & payment management

**WebSphere Commerce Business Edition (WCBE)**

- Includes all the function in WCPE function plus significantly more B2B functionality
  - Sell-side managed contracts, RFQ's, approvals workflow, requisition lists, buyer/seller collaboration, advanced user management and access control

*Excellent WebSphere Commerce Demo* *

http://cdsportal5.corningdata.com/demosite5/eportal1.nsf

ID = wcs

Password = password

* IBM only
Notes: WebSphere Commerce V5.4 Overview

There are 2 editions of WebSphere Commerce V5.4 (latest, as of January 2003) that are of interest to iSeries users.

WebSphere Commerce Professional Edition (WCPE). This is typically used for B2C - Business to Customer application environment

WebSphere Commerce Business Edition (WCBE): This is typically used for B2B - Business to Business applications. This includes WCPE functions plus B2B functions such as Request for Quotes (RFQs), buyer and seller collaboration, and advanced user and security (access control) management.

You can see the relative price (iSeries sub-capacity pricing) per processor offered for each of the WS Commerce products.

If you are an IBMer and new to WebSphere Commerce check out the demonstration listed on the lower right of this foil.

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<thead>
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<th>Passport Advantage</th>
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<td>D5B9CLL</td>
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<tr>
<td>5724-A18</td>
<td>D50SALL</td>
</tr>
</tbody>
</table>

IBM WebSphere Commerce Professional Edition for iSeries, Version 5.4

IBM WebSphere Commerce Business Edition for iSeries, Version 5.4
WebSphere Commerce Pro

- New WebSphere Commerce offering for Small & Medium Businesses
  - Priced at $22,400 (US) - Sub-capacity pricing available
- Functionally similar to WebSphere Commerce Professional
  - SameTime function not included
- Restricted Terms & Conditions
  - Can only be run on 1 processor
  - Limited to only 1 store
- Meets the needs of the MidMarket
  - Supports iSeries
  - Low price
  - Channel-ready
  - Upgrade path to other WebSphere Commerce Professional & Business Editions
Notes: WebSphere Commerce Pro

WebSphere Commerce Pro is a specially priced, reduced function version of WebSphere Commerce Professional Edition. Some customers in the "Mid Market" are already using this on iSeries have given good reports about this product. Note that it has an upgrade path to the Professional and Business editions.

You can see the relatively lower price per processor and key "reduced functions:"
  ■ Limited to 1 store
  ■ Can run on only 1 system
  ■ Sametime function is not included.
Portals and Portal Servers

Portals are Web pages tailored for specific users providing:

- A single point of personalized interaction
- Integrated content, applications, people & processes

WebSphere Portal Server Enable V4.1 for iSeries

- Quickly build scalable portals to simplify and speed your access to personalized information and applications
- $72K (US) per processor
- Sub-capacity pricing NOT supported

Portals

* B2B
* B2E
* B2C
You can build highly scalable portals though a set of portlets. Portlets are the visible active components end users see within their portal page. This is similar to a number of windows under a Windows operating system PC client.

IBM application development tools simplify and personalize your own portal page construction.

This is an example of a portal for an IBM employee.

There are portal constructs for:
- Business to Business
- Business to Employee
- Business to Customer

IBM has a WebSphere Portal Server for its platforms. The latest one available on iSeries is WebSphere Portal Server Enable V4.1 for iSeries.

Note that sub-capacity pricing (LPAR partition) is not yet available for this product.

IBM WebSphere Portal Version 4.1 delivers a range of new features designed to consolidate and enhance a user's single point of contact with applications, people, content, and processes:
- New, industry-leading collaborative capabilities
- New event-management support
- Web Services capabilities
- Content publishing options
- Faster portlet development
- Enhanced security
- New search engine
- Pre-integration with commerce technology

Allowing businesses to collaborate more effectively, WebSphere Portal Version 4.1 provides a standards-based, e-business platform that enables employees, consumers, and other companies to easily and seamlessly interact with personalized information. In addition, the new WebSphere Portal Version 4.1 delivers out-of-the-box integration capabilities through a single integrated platform previously available only through multi-vendor solutions.
WebSphere Portal, Portlet Example

Collaboration data

Federated search across multiple repositories

Personalization button

Navigation bar

Subscriber News

Inventory data from ERP Application

Business partner relationship data

IBM Knowledge Portal -
Netscape Communicator

Insurance Stocks after Floyd
Insurance stocks are riding the choppy wake of Floyd. Frontier eyes Q2 gains
Frontier Group CFO told securities analysts the 2nd quarter would exceed earnings estimates.

Customer Watch

Frontier eyes Q2 gains

Insurance Stocks after Floyd
Insurance stocks are riding the choppy wake of Floyd.

Customer

Date        Activity                               Team         Status
08/08/00    Opportunity: Competitors poor laptop performance
            Denize, Broslin                              Open
08/11/00    Complaint: Broken hard drive on arrival
            Hans, Dieterbrot                             Open
08/11/00    Opportunity: Frontier merger creates new sales team
            Hiro, Narita                                 Open
08/12/00    Opportunity: New sales demo hardware needed - CDROMs
            Denize, Broslin                             Done
08/15/00    Opportunity: Request for information from HR
            Denize, Broslin                             Cancelled

Current Forecast

<table>
<thead>
<tr>
<th></th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>0</td>
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</tr>
</tbody>
</table>

Website Hits

M T W Th F

Partner Requests

Dixon: New Classes on PCMCIA
8/01/00

Martin Corp.: Need Supply of Ethernet cards by Sept. 28
8/03/00

Johnson Inc.: Alternate supplier of docking stations
8/04/00

Fingerhut: 1500 Thinkpads ordered for

Inventory data

Application

Federated search across multiple repositories

Personalization button

Navigation bar

Subscriber News

Inventory data from ERP Application

Business partner relationship data

IBM Knowledge Portal -
Netscape Communicator
Notes: WebSphere Portal, Portlet Example

This is a mock up of a portal screen for explaining what a portal needs to be. Examples of some of the portlets are listed below.

**Subscriber Window**: this window shows me syndicated data -- such as Reuters, Dow Jones, NewsWire, BusinessWire, etc... that may be relevant to your specific skills and role. Keeps me in touch with market realities.

**Collaboration window**: this window shows customer activities like a sales team room. I can watch customer events and be tuned into something for a client I am personally responsible for.

**RealTime News**: This is a website hit rate monitor. It simply says I am watching in case some major shift in access occurs -- which it has. Thursdays hits are way up indicating our advertising campaign is a success.

The business partner data is an in-house custom application that helps me track sales opportunities through the partners. Since they don't sell very well without resources, I keep a watch for incoming requests.

The BI report is one of the most commonly requested portal feature. Here I can get reports delivered daily and ad hoc on forecasts versus actuals by region, product, etc...

**ERP Inventory data**: Here is another application delivering me personally relevant information about inventory and ship levels on orders I have placed for my client.

Of course, all portals have a SEARCH capability.

Personalize is the button that lets me adjust my profile, add and subtract things from my personal "home page" in the he portal.
Notes: WebSphere Portal - Express

Background information:

**WebSphere Portal - Express for Windows V4.1:** Combines features of the WebSphere Portal family with simplified installation and the option for per user or per processor price. This combination enables small businesses as well as departments within larger companies to more easily deploy sophisticated employee, business partner and customer portals.

The following components are included:

- **WebSphere Portal - Express Intranet for Windows V4.1:** Contains the portal framework, personalization, a selection of portlets and the WebSphere Application server.
- **WebSphere Portal - Express Intranet Plus for Windows V4.1:** Contains all the function in IBM WebSphere Portal - Express Intranet for Windows V4.1 and adds in collaboration features including: instant messaging, teamrooms, on-line awareness, group calendaring, document check-in/check-out, and project management. This product is priced on a per user basis in increments of one user.
- **WebSphere Portal - Express Extranet for Windows V4.1:** Contains all the function supplied in WebSphere Portal - Express Intranet for Windows V4.1 and is priced on a per processor basis. It is licensed for use by portal users who are not employees of your company.
- **WebSphere Portal - Express Extranet Plus for Windows V4.1:** Contains all the function in IBM WebSphere Portal - Express Intranet Plus, V4.1. This product is priced on a per processor basis. It is licensed for use by portal users who are not employees of your company.

Current IBM plans are to have the Express support on iSeries in 4Q 2003.
iSeries WAS, WS Commerce Pricing Examples

2-Way iSeries

<table>
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<tr>
<th>Partition #1</th>
<th>Partition #2</th>
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<tr>
<td>WAS</td>
<td>Other Workload</td>
</tr>
<tr>
<td>0.5 cpu</td>
<td>1.5 cpu</td>
</tr>
</tbody>
</table>

WAS processor units = 0.5
WAS licenses required = 1

8-Way iSeries

<table>
<thead>
<tr>
<th>Part #1</th>
<th>Part #2</th>
<th>Part #3</th>
<th>Part #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAS</td>
<td>WCS</td>
<td>WCS</td>
<td>Other Workload</td>
</tr>
<tr>
<td>1.5 cpu</td>
<td>0.4 cpu</td>
<td>0.5 cpu</td>
<td>5.6 cpu</td>
</tr>
</tbody>
</table>

WAS processor units = 1.5
WAS licenses required = 2
WCS processor units = 0.9
WCS licenses required = 1

- LPAR required - license a product for use on less than the full capacity (in processors) of the machine
- Use the Electronic Service Agent for iSeries to send the software inventory to IBM every 30 days
- This data is used by IBM to audit for compliance to the license terms and conditions
See the following web sites for more information on sub capacity pricing:
- The above URL can be linked to by selecting the first category on right-hand side under Features for this URL:
iSeries e-business Summary

- WebSphere-Express V5 is most important WebSphere announcement for iSeries
  - Especially consider WebFacing does not require 5250 OLTP CPW with iSeries 810, i810, i870, i890
- iSeries customers & ISV's have many low-cost options to "Start Simple"
  - WebSphere-Express V5 for iSeries
  - WebFacing Tool
  - iSeries Access for the Web
  - WebSphere Host Publisher

- Advanced WebSphere Brand products help iSeries customers and ISV's "Grow Fast"
  - WAS V5 (Base Server & Network Deployment)
  - WebSphere Commerce
  - WebSphere MQ
  - WebSphere Portal Server

- Major education & services opportunity exists for IBM & WebSphere Business Partners
Quick summary of WebSphere-based product choices

- Customers/ISV's who want low cost application server supporting Servlets & JSP's
  - WAS - Express V5 for iSeries

- Customers/ISV's who want most robust, scalable application server supporting J2EE
  - WebSphere Application Server V5 & WAS V5 Network Deployment

- Customers who want their employees to access iSeries resources with a browser
  - iSeries Access for the Web

- Customers/ISV's who want to modernize 5250 applications by converting DDS
  - WebFacing Tool

- Customers who want to modernize 5250 applications on the fly via data streams
  - WebSphere Host Publisher or HATS

- Customers who want to build/deploy a B2C or B2B eCommerce solution
  - WebSphere Commerce

- Customers/ISV's who want to offer a single integrated portal for B2B, B2C or B2E
  - WebSphere Portal Server
Appendix
**WS Application Server V5.0 - Express Runtime Specifications**

**iSeries**

**Included:**
- Web container
- JSP processor
- Server-side JavaScript (Bean Scripting Framework)
- WebSphere Common Control Model libraries
- XML parser
- XSL processor
- Web Services - SOAP client API only
- Security runtime (Simple WebSphere Authentication, local OS authorization -- no LDAP or custom registry support)
- RAS subsystem
- HTTP session support -- in-memory session support
- J2EE API libraries
- Internal web server
- JVM 1.3.1
- Simplified default server config
- Connection Manager
- JDBC providers
- Debug libraries
- Installs as Windows service (Windows platforms only)
- HTTP web admin console extensions (iSeries only)
- Web Server plug-in’s - IBM HTTP for iSeries server, Domino for iSeries server (iSeries only)

**Excluded:**
(From base WebSphere Application Server V5)
- EJB container
- Java messaging support / JMS providers
- J2EE transaction support
- J2C resource adapters
- J2EE Application Client
- ACE support
- Work Load Management (WLM)
- Performance monitoring infrastructure (PMI)
- Localizable text
- Dynacache
- Data Replication Service (DRS)
- XML grammar library
- Client Container Resource Config Tool (CCRCT)
- Mail providers
- URL providers
- Resource Environment provider
- Application Assembly Tool (function provided by WSSD)
- Deploy Tool (provided by WSSD)
- WAS runtime samples (alternate samples provided)
- IBM HTTP Server (external)
- Web server plug-ins (IBM HTTP Server, IIS, Apache, iPlanet)
WebSphere Application Server V5 - Express Administrative Capabilities

**Included:**
- Browser-based admin interface (iSeries only)
- Create server instance
- Create server configuration
- Start server
- Stop server
- Start server in debug mode
- Publish to server
- Restart application
- Set classpath entries for server
- Pass arguments and system properties when starting server
- Configure mime types
- Enable/disable session manager, URL rewrite, cookies
- Configure data sources
- Configure ports
- SSL configuration
- Configure the deployment descriptor for an application:
  - Servlet configuration
  - Security roles
  - Environment variables
  - Specify start page
  - Specify error page
  - Set context parameters
  - Set mime types

**Excluded:**
(From base WebSphere Application Server V5)
- Browser-based admin interface (Intel only)
- Trace level configuration
- Trace analysis
- Analysis logger support (Site Analyzer components)
- Resource Analyzer
- Tivoli Performance Manager
- Performance monitoring
Objectives: Educate iSeries Sales Channels, Application ISVs, Consultants and Customers on the Value and workings of the WebSphere Express and WebFacing Technologies

Fee: "No Charge Offering"

Duration: 16 total hours of lectures and labs

Content:
- WebSphere Express
  - WebSphere Express Lecture (3 Hours)
    - What is WAS Express? Why is it of interest? How is it installed and used?
  - WebSphere Express Lab (4 Hours)
- WebFacing
  - WebFacing Lecture (3 Hours)
    - What is WebFacing? Why is it useful? How does one develop and deploy?
  - WebFacing Lab (6 Hours)

Lab Assumptions:
- Students prepare and use their own Workstation and Server environments
  - Workstation Prerequisites Identified (e.g. WDS 5.0, ...)
- iSeries Server Prerequisites Identified (e.g. OS/400 V5R2, WAS 5.0 Express, Apache ...)
  - Workstation to/from iSeries Server Connectivity Prerequisites Identified (e.g. TCP/IP ...)
- WebFacing Sample Application available via FTP Download (e.g. Subset of APILIB Contents)
- Technical Questions and Answers supported via iTCeBiz eMail and Limited Phone Spt

Availability: Targeted for March 2003

Where: http://www-1.ibm.com/servers/eserver/iseries/education/
- Free On-line education on the right side
**integrated Education & Services for iSeries**

...helping customers take the first step

<table>
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<th>Solution</th>
<th>Education</th>
<th>Services</th>
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<td>Windows Integration</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

**Included with the Enterprise Package on the i825, i870 and i890**

- Select one Getting Started service
  - WebSphere / Linux / Window Integration
- Receive IBM Learning Services education vouchers for selected courses
  - Systems Management / WebSphere / Linux / Windows Integration / Tech Conference
IBM Integrated Education and Services help customers take the first step has never been this easy

As you have seen, with this announcement we are delivering the hardware and software to allow customers to leverage IBM’s industry leading integration and server consolidation technologies. With this, we want to ensure our customer’s first experience with WebSphere, Linux and Windows Integration is as successful as possible. So we are excited to announce that with our Enterprise model i825, i870 and i890 servers, customers can receive IBM education and services targeted at making the adoption of WebSphere, Linux and Window Integration as easy as possible!

Services
From an IBM services perspective, there is a Getting Started service offer available for WebSphere, Linux and Windows Integration. Customers can select one service per Enterprise packaged i825, i870, or i890 system purchased.

Each Getting Started service covers installation, configuration, basic application installation and a Solution readiness analysis. Our goal when designing these services was to focus on providing our customers with a positive first experience and to ensure the correct expectations are set.

NOTE: Initially, only IBM services resources will perform these services. Over time IBM will offer to enable business partners. However, initially, these technologies are so strategic to iSeries that we want to ensure the customers first experience is positive. Business partners interested in offering this service should contact IBM.

Education
From an IBM Learning Services perspective, the iSeries i825, i870 and i890 Enterprise Edition of hardware and software includes education vouchers. The number of education vouchers varies by the size of the system. That is 1x for i825, 3x for i870 and 5x for i890. Each voucher entitles the customer to attend one of 5 defined courses.

The available courses should give customers the best chance of being successful, so they include WebSphere, Linux, Windows Integration, Systems Management and even the Tech Conference.

When you put this all together, the iSeries has integrated IBM to make it as easy as possible for our customers get started with integration and server consolidation solutions.
Integrated Education & Services for iSeries
...helping customers take the first step

Getting Started with WebSphere for iSeries

- **Integrated Services (approx. 2 days)**
  - Installation & Configuration
    - WebSphere Express or WebSphere Advanced
  - Installation of IBM Telephone Directory Application
    - Included with WebSphere Express only
  - WebSphere Solution Readiness Review

- **Integrated Education**
  - i825 – 1 voucher / i870 – 3 vouchers / i890 – 5 vouchers

- AS85/S6285 - Web-Enabling 5250 Applications
  - This course enables you to learn how to work with an existing 5250 application and use the IBM WebFacing Tool to create a browser based user interface, and run this application as an e-business application. You learn how to use the Tool and customize the WebFacing environment to run an e-business application.

- **For more information:**
  - www.ibm.com/eserver/iseries/hardware/packages
end-to-end Technical Support ...the Key Links

How to engage Technical Sales Support
✓ External Support:
  ✓ http://www.ibm.com/support
✓ PM iSeries - www.ibm.com/eserver/iseries/pm400


http://www.ibm.com/servers/eserver/iseries/education/pie/

http://www.redbooks.ibm.com


http://www.ibm.com/eserver/iseries/support
Education, reference material, & demos

Education:

- **IBM WebSphere Host Publisher Application for iSeries Development**
  - Course Code: S6232
  - See iSeries Technology Center website at: http://www-3.ibm.com/services/learning/
- **IBM WebSphere Host Publisher Application Development Workshop**
  - Course Code: SW910
- **Web Enablement Workshop for iSeries**
  - Course Code: ITC08
  - See iSeries Technology Center website at:
- **iSeries WebFacing Tools**
  - Course Code: AS043
- **WebSphere Studio for iSeries plus WebFacing Tool**
  - Course Code: S6185
- **Web Strategy and Design Workshop**
  - Course Code: ITC12
  - hands on workshop intended to introduce a set of application development tools to customers that are creating Java-based applications for iSeries.
    - WebFacing, Host Publisher, Visual Age for RPG


- **Introduction to WebSphere on iSeries (1.5 hrs)**
  - Course Code: IK087
- **Implementing WebSphere Application Server on iSeries (1.5 hrs)**
  - Course Code: IK088
- **Web Facing Your iSeries Applications (1.0 hrs)**
  - Course Code: IK089

Reference Material:

- **Building Integration Objects With IBM SecureWay Host Publisher Version 2.1, SG24-5385-00**
- **iSeries Access for Web Installation Guide (SC41-5518)**
- **WebSphere Development Tools for iSeries Generating Web Front Ends to Existing Applications, REDP0516**
- **IBM WebSphere Development Tools for AS/400: An Introduction, REDP0503**
- **Web Enabling AS/400 Applications with IBM WebSphere Studio, SG24-5634-00**
- **Linux on the IBM eServer iSeries Server: An Implementation Guide, SG24-6232-00**
- **Building iSeries Applications for WebSphere Advanced Edition 3.5, SG24-5691-00**
- **Building A Java Adapter Over a 5250 Application to enable B-B transactions' article**
  - An example of taking an interactive 5250 order entry application running on an iSeries machine, and making it accessible via a web browser

Demo iSeries Access for Web and WebSphere Host Publisher:

http://iseriesd.dfw.ibm.com/webaccess/iWAHome (case sensitive)

Use the following User ID and password to sign in:
- User ID of **WUSER**
- Password of **GUEST1**

Beaver Creek Web Solutions Demo site...

http://www.piner.com/
WAS 4.0 overview and iSeries webserving performance topics
General WAS implementation on iSeries

HTTP port default = 80

iSeries Server

Application Server

Servlet Engine

EJB Container used by 3.0 & 4.0 AE, 5.0 Base

Administrative Server

RMI/IIOP

Repository

HTTP server

Plug-in

Any Client, Any Browser

Any Client, Any Browser

Web Browser

Bootstrap port default = 900

Administrative Console
Notes: General WAS implementation on iSeries


This figure shows how WebSphere 3.0 (and later) provides servlet and EJB support. WebSphere provides the application server, which includes a servlet engine for running servlets and JSPs and in the case of Advanced Edition, the container. The container is where Enterprise JavaBeans are deployed. An administrative server is used to configure the servlets and JSPs in the servlet engine and the EJBs in the container. An administrative console is used to communicate with the administrative server.

An end user runs a servlet or JavaServer Page from a browser. The browser interfaces to an HTTP server and it in turn passes the request to the application server through an interface called a plug-in. You need to configure the application server and the HTTP server so they can communicate with each other. We show you how to do this later in this article. You do not use Enterprise JavaBeans directly, you use them from an application. We show an EJB client (a Java application) interfacing with the container to access the EJBs. We can also have a web application interface with an EJB. In this case, the browser interfaces with a servlet. The servlet in turn accesses the EJB through the container.

Note:

- The Administration interface for version 3.0 is a Java Swing based application that resides on the workstation. The support for Advanced Edition is different than Standard Edition. You can get both to run on the same workstation by installing them in unique directories. Both are Windows applications.
- The Administrative interface for version 4.0 is significantly improved over the 3.0 interface from an ease of use viewpoints. A Windows operating system is required.
- The Administration interface for version 5.0 does not require a Windows operating system - just a Java-capable browser.
General WAS implementation with OS/400 subsystems

**QHTTP subsystem**
- HTTP Server jobs
- WebSphere Appl. Server plug-in

**QSYSWRK subsystem**
- QSQSRVR jobs
- SQL CLI requests

**QEJBADV4 subsystem**
- WAS instance Monitor Job
- WAS instance Admin Server Job
- Application Server Job(s)
iSeries Software installation requirements

- AS/400 Developer Kit for Java (5722-JV1)
  - Install proper JDK to support the WAS version you installed
    - option 1 = jdk1.1.6, 2=jdk1.1.7, 3=jdk1.2.2, 4=jdk1.1.8, 5=jdk1.3

- TCP/IP Support (5722-TC1)

- Qshell Interpreter (5722-SS1 - option 30)

- HTTP server support (5722-DG1) and latest plug-in PTFs

- OS/400 Directory Services (5722-SS1 option 32)
  - LDAP support

- The latest OS/400 cumulative PTF package

- The latest WAS group PTFs for iSeries
Check iSeries Data Areas for related group PTFs

- Java
  - DSPDTAARA DTAARA(QJAVA/SF99069) V5R1
  - DSPDTAARA DTAARA(QJAVA/SF99068) V4R5

- HTTP
  - DSPDTAARA DTAARA(QHTTPSVR/SF99156) V5R1
  - DSPDTAARA DTAARA(QHTTPSVR/SF99036) V4R5

- Database
  - DSPDTAARA DTAARA(QSYS/SF99501) V5R1
  - DSPDTAARA DTAARA(QSYS/SF99105) V4R5

- Always check this website for latest information on PTFs required (including V5R2):
  - http://www.ibm.com/eserver/iseries/support
Helpful WebSphere Web References

WAS 4.0 on iSeries Summary
WAS 4.0 offerings and iSeries Summary

- **Advanced Edition Version 4.0, Single Server (AEs)**
  - Lightweight, simplified implementation
  - No relational database requirement for repository

- **Advanced Edition Version 4.0, Development Only (AEd)**
  - Identical to Single Server Option, but licensing restricts usage to non-production
  - Windows NT/2000 platform only
  - Electronic download only

- **Advanced Edition Version 4.0 (AE)**
  - Quality of Service enhancements
  - Multiple/Distributed Server support
  - Intended for production and deployment

- **Enterprise Edition***
  - High-end functions, beyond the J2EE specifications
    - Examples: internationalization, distributed application context, ....
  - Requires Advanced Edition as a base

* Not available on iSeries
Notes: WAS 4.0 offerings and iSeries Summary

WebSphere Application Server version 5.0 is the "featured version" of WAS for the January 2003 announcements.

However, there may be situations where customers have a requirement for WAS 4.0, such as where ISV applications are certified to run on version 4.0 but not yet on version 5.

Therefore we include this summary of WAS 4.0 offerings available on iSeries.

WebSphere Application Server Single Server edition, often designated with the acronym "AEs", is a lightweight and simplified implementation of the application server. Installation and setup are straightforward - this edition doesn't require a relational database for the administration repository. The single server edition is intended for development, testing, and it may be used for deployment in very small environments. In the next chart we will point out the functional content and the limitations of the Single Server edition.

A variation of the AE is represented by the "Development only" edition - whose content is exactly the same as the Single Server's - except that the license agreement excludes any production usage. This edition can be utilized for development and testing only.

WebSphere Application Server Advanced Edition is the full blown application server product, intended for production environments. The Advanced Edition includes support for multiple application servers, workload management, and provides high quality of service.

The Enterprise Edition offers some specific top level functionality that is particularly appealing to high end customers.

The Administration interface for version 3.0 is a Java Swing based application that resides on the workstation. The support for Advanced Edition is different than Standard Edition. You can get both to run on the same workstation by installing them in unique directories.
Connect for iSeries

More securely connect disparate applications via the Internet

Define and Exchange information that drives your applications

- Purchase Orders, Product Information, Price, RFQ, etc..
- A single request can flow to multiple applications on different servers & provide a single response

Includes MQSeries, Connectors, Servlets, Flow Manager & Administrative tools

Benefits

- Simplified business-to-business (B2B) & application-to-application (A2A) connectivity
- Provides connectivity between applications at a very low cost
Connect for iSeries, 5733-B2B, was originally developed to allow iSeries customers to easily connect to eMarketplaces like Ariba and Metiom.

However, the eMarketplaces did not become as successful as many vendors and consultants thought they would be - yet.

Connect for iSeries V2 includes the ability to connect iSeries to eMarketPlaces but it also includes additional function to provide for application-2-application connectivity.

Connect for iSeries V2 allows developers to connect disparate applications via the web and to define and Exchange information that drives corporate applications. In all of this, XML-derivatives are at the base for making all this work.

These applications could include Purchase Orders, Product Information, Price. RFQ, etc..

A single Connect for iSeries request can flow to multiple applications on different servers & provide a single response.

Connect for iSeries includes WebSphere MQ (MQ Series), Connectors, Servlets, Flow Manager & Administrative tools all in one integrated product.

The benefits of Connect for iSeries include simplified business-to-business (B2B) & application-to-application (A2A) connectivity between applications at a very low cost.

See the detailed Performance presentation for new B2B monitor support under Management Central monitors support.
Using iSeries HTTP server based caching
Notes: Using iSeries HTTP server based caching

This section reviews iSeries caching support for web page serving and highlight new with V5R2 Fast Response Caching Algorithm (FRCA) support. This information on the various web page caching algorithms available on iSeries can speed up response time.

After summarizing caching techniques available before V5R1, we specifically focus on the new with V5R2 available Fast Response Accelerator Cache (FRCA) support.

Note: As of January 2003, the HTTP Server for iSeries powered by Apache, is at Apache level 2.0.43 on both V5R1 and V5R2.
Local Cache - Independent of FRCA

- Local cache implementation
  - Define the memory size for the files to be cached
  - Define the cache method

- Cache method
  - Copy into memory
  - Keep file descriptor open
  - Memory map of file

- Directives for cache option
  - LiveLocalCache
    - Dynamically update the files in the local cache
  - DynamicCache
    - Dynamically add new files to the local cache
Notes: Local Cache - Independent of FRCA

This foil summarizes the fixed and dynamic cache support available on iSeries through V5R1 - still very useful with V5R2.

In V5R1 the Triggered Cache Manager was made available. These and FRCA cache mechanisms are discussed in more detail in Performance presentation.
FRCA Features

- Two new components that work together
  - Fast Response Cache Accelerator (FRCA)
    - Provides system API set and framework for socket applications
    - Accelerates file serving performance for the HTTP server
    - The *one V5R2* example is the HTTP Server (powered by Apache)
  - Network File Cache (NFC)
    - Provides iSeries SLIC (microcode) level cache

- Configurable by new FRCA directives in Apache server configuration
  - Can be enabled for specific "listen port"
  - **Local cache**: Specify file name (with wild cards) for "static" content caching
    - When content is updated NFC automatically uses new file
  - **Reverse proxy cache**: Specify URI for "dynamic" or remote content caching
    - Timer used to determine when cached items are stale
Responding to the growing need for improved speed and performance of Web servers, IBM research has defined the Adaptive Fast Path Architecture (AFPA). AFPA has been implemented on several server platforms including Windows NT and Windows 2000, OS/390, AIX and most recently Linux. The external product name is most commonly known as Fast Response Cache Accelerator (FRCA).

AFPA is a software architecture that dramatically improves the capacity of Web and other TCP servers. The architecture defines interfaces that allow these generic mechanisms to be exploited to accelerate a variety of application protocols, with the focus on HTTP. The architecture is general purpose and applicable to many TCP servers, including FTP, NFS, DNS and Domino.

For OS/400 V5R2, this architecture is implemented as the FRCA feature with the HTTP Server (powered by Apache).

Since, the iSeries TCP stack runs in a SLIC router task and not a software interrupt, the FRCA code also executes in a SLIC router task context. The SLIC based implementation eliminates the overhead of switching from a SLIC router task to a user-level server thread. FRCA provides system APIs that can be used by system applications, at this time, the HTTP Server (powered by Apache). HTTP Server (powered by Apache) uses this APIs to work with SLIC FRCA code and Network File Cache (NFC) for serving contents.

The AFPA architecture includes a network file cache that serves non-secure static content. This architecture is implemented as the Network File Cache (NFC) with FRCA feature for the HTTP Server (powered by Apache). NFC provides the capability to efficiently store and retrieve cached entries of file data and user data.

FRCA directives are provided to the HTTP Server (powered by Apache) that enables your HTTP server to use FRCA cache. FRCA cache can be enabled for each listen port in the server configuration. This allows us to make choice if you use FRCA cache or not for each Listen on a specific <IP address:port>.

Static content can be cached by specifying file name using certain directives. The loading to the cache occurs during starting up of the HTTP server or the first access to that file, and this depends on which directive is used. You can use an asterisk (*) as a wildcard character on the file names. Then you can specify the directory name with the asterisk to make FRCA cache for some temporary files like the ones created by TCM.

Dynamic content such as result of CGI or servlet can be cached by specifying URI of the request and cache life time. **This is a reverse proxy cache support that allows you to access an HTTP server either on this same iSeries or anywhere on your intranet or Internet to get new data every "n" units of time.**
FRCA: Local Cache Hit Scenario

Apache server

Socket API

Socket API

Network File Cache

Network

Web browser

File

IFS

SLIC Sockets

FRCA

FRCA: Local Cache Hit Scenario

TCP/IP

HTTP request

lookup & hit!

Hash Table

Handle

File

Network File Cache

SLIC HTTP Server Code

4 locate

5

send

6

response

HTTP request

lookup & hit!

Hash Table

Handle

File

Network File Cache

SLIC HTTP Server Code
This foil shows the scenario when the file is found in the FRCA cache. That is, the cache hit scenario.

The steps from request through response are as follows.

1. An HTTP request received by TCP and passed to the FRCA.
2. The FRCA intercepts the HTTP request and passes it to the SLIC HTTP Server code.
3. The SLIC HTTP Server code parses the HTTP request and uses the URL as a search key into the HTTP logical cache (Hash table).
4. When the HTTP logical cache lookup is successful, Network File Cache (NFC) is called to locate the file data using the NFC handle found in the hash table.
5. NFC finds the file using the handle, and returns it to the SLIC HTTP Server code.
6. The SLIC HTTP Server code builds the HTTP response header and links the file data to it, and sends it as a response through TCP/IP.

The above path can result in a sizable performance (of a single transaction) and capacity (allowing more transactions per unit time) improvement due to:

- Never having to go above the Machine Interface (MI). This results in:
  - No task switches to the threaded job model above the MI
  - Could (depending on a variety of things) save 2 copies of the data. FRCA will not copy the data it finds in the NFC. FRCA will directly send the data to the TCP/IP stack in the iSeries SLIC.
- Code path length should be shorter which will result in CPU utilization for cache hits to be lower.
FRCA Considerations

- No SSL/TLS supported for the FRCA enabled sessions/ports
- No authentication protection for the file in FRCA (NFC)
  - Contents should be for public access under FRCA
- No NLS code page conversion performed
  - IFS files are read in binary and loaded into the NFC cache as is
Notes: FRCA Considerations

FRCA does not support SSL (Secure Sockets Layer) and or TLS (Transport Layer Security), therefore you cannot enable FRCA cache for the sessions or ports with SSL/TLS. The reason is because SSL and TLS works above MI while FRCA works below MI.

Since you can enable FRCA cache for each listen port, the ports with SSL and without SSL can coexist in the same server and can access them as a different server using virtual host.

Once the file loaded into the NFC, it can be accessed by any users accessing files in the same server instance. Entries in the NFC are keyed by instance so there is some protection between server instances that happen to be serving the same file (the file will actually be placed in the NFC twice in this case). This is because authorization check is also performed above MI.

When a request for the file that is already in the NFC comes, the file will be served without authorization check since FRCA has no way to do it. For this reason, you should enable the FRCA cache only for the contents that can be public.

Similarly, since the code conversion is also performed above MI, code conversion is not supported. IFS files are read in binary and loaded into the cache as is. Generally, you do not need any code conversion for the files in the IFS to be served by the HTTP server. So this limitation should have no impacts.

If you have the same contents in a different language, they contents must be in different files, or if they have the same name, they must be in different directories. Therefore, each file can be cached and served independently.

Note on Transport Layer Security (TLS) protocol: The TLS protocol provides communications privacy over the Internet. The protocol allows client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, or message forgery. The TLS protocol itself are based on the SSL 3.0 Protocol Specification as published by Netscape. The differences between this protocol and SSL 3.0 are not dramatic, but they are significant enough that TLS 1.0 and SSL 3.0 do not interoperate (although TLS 1.0 does incorporate a mechanism by which a TLS implementation can back down to SSL 3.0). See RFC 2246 for details. RFC 2246 can be found in several sources, one of which is V5R2 Information Center at Security -> Secure Sockets Layer -> SSL concepts.
Network File Cache Configuration

- **IPL**
  - The initialization of NFC occurs during IPL

- **Configuration values in CHGTCPA command:**
  - Enablement
  - Cached file time-out
  - Cache size

New parameters

```
Network file cache:  
Cached file timeout .... 300     *NOMAX,30-604800 sec (1week)
Cache size ........... 10      10-100000 megabytes
```
Notes: Network File Cache Configuration

FRCA requires usage of the new for V5R2 Network File Cache. This foil explains Network File Cache is set up.

IPL
The initialization of the Network File Cache component will occur during the IPL when the other file servers are initialized.

Configuration values in Change TCP/IP Attributes (CHGTCPA) - new with V5R2

- Enablement
  - Specifies whether the Network File Cache (NFC) function will be enabled on this system. The default value is *YES.
  - When you specify *CLEAR for this parameter, it immediately clears the entire Network File Cache. After the cache is cleared, the previous Network File Cache values will be retained.

- Cached file time-out
  - Specifies the maximum amount of time, in seconds, that a file can be cached in the Network File Cache. This ensures that a file is refreshed at a regular interval. A value of *NOMAX is available.
  - A cache time can be specified when NFC is not enabled.

- Cache size
  - Specifies the maximum amount of storage that may be used by the NFC for the entire system. This is the accumulative storage used by all TCP servers for loading files.
  - A cache size can be specified when NFC is not enabled.
FRCA Configuration: Enablement

- FRCA cache can be enabled for each separate **Listen**
  - Listen [IP address:]port-number <optional parameter>
    - The <optional parameter> is "FRCA" and is used to enable FRCA cache
    - Examples:
      - Listen 10.5.5.5:80 FRCA
      - Listen 10.5.5.5:443

- Two directives to turn on/off other FRCA directives
  - To give you the ability to turn off FRCA without having to comment out numerous local cache or reverse proxy cache directives.
  - **Local cache:**
    - FRCAEnableFileCache On/Off
    - Enables/disables FRCA local cache for this server instance (server context)
  - **Reverse proxy cache:**
    - FRCAEnableProxy On/Off
    - Enables/disables FRCA reverse proxy cache for this server instance (server context) and VirtualHost context
Notes: FRCA Configuration: Enablement

This foils shows the primary HTTP server directives to put FRCA into effect for a specific server. There are additional directives that control additional "behavior" of FRCA, such as size of the local cache, FRCA cache activity logging, and what and when files are to be cached. These additional directives are not detailed in this presentation. For more details, see Information Center -> e-business and Web servers.

Directive to enable configuration and use of a specific IPaddr:port for FRCA

<table>
<thead>
<tr>
<th>iSeries Apache Directive</th>
<th>Description</th>
<th>Syntax</th>
<th>Default</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen</td>
<td>To enable or disable using of the FRCA caching support for this IP Address:port</td>
<td>Listen IPaddr:port FRCA</td>
<td>off (FRCA parameter is blank)</td>
<td>Server Config</td>
</tr>
</tbody>
</table>

You can use this option on the Listen directive to enable or disable using of the FRCA caching support for this IP address and port. This directive can be used only in server configuration context.

Example:

Listen 10.5.5.5:80 FRCA
Listen 10.5.5.5:443

This example enables use of FRCA cache for this server instance on port 80. Any request that comes in for port 443 (assume that port 443 is SSL/TLS traffic) is not cached by FRCA.

The directive shown turns on or off the use of local cache and applies to each server instance.

You can optionally specify a reverse proxy cache which essentially tells the HTTP server that every "n second" when a specific URI (Universal Relocator Indicator (consider this a "prefix" within a URL) is received go to another server instance to find the requested page. The "other instance" responds with the page, which is then kept in the local Network File Cache on the local system. When "n seconds" have expired, get the same page "again" from the second server. This second server would be the one responsible for updating the web page (file). The next foils give some additional information.
Two directives to turn on/off other FRCA directives

To give you the ability to turn off FRCA without having to comment out numerous local cache or reverse proxy cache directives you can use these two 'switch' like directives.

<table>
<thead>
<tr>
<th>iSeries Apache Directive</th>
<th>Description</th>
<th>Syntax</th>
<th>Default</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRCAEnableFileCache</td>
<td>To enable or disable using of the FRCA local caching support for this server instance.</td>
<td>on/off</td>
<td>off</td>
<td>Server Config</td>
</tr>
<tr>
<td>FRCAEnableProxy</td>
<td>To enable or disable using of the FRCA reverse proxy caching support for this server instance or VirtualHost context.</td>
<td>on/off</td>
<td>off</td>
<td>Server Config, VirtualHost</td>
</tr>
</tbody>
</table>

The local cache 'switch' FRCAEnableFileCache On/Off works only within the Server Context and will enable or disable FRCA local caching for the entire server instance. That is, if FRCAEnableFileCache is off, all other FRCA file cache related directives in the configuration file are ignored.

The default is off, so if you will be using FRCA local cache you should explicitly turn this feature on with the directive FRCAEnableFileCache on
The reverse proxy cache 'switch' FRCAEnableProxy On/Off works within the Server Context and any VirtualHost contexts and will enable or disable FRCA reverse proxy caching. That is, if FRCAEnableProxy is off, all other FRCA reverse proxy cache related directives in the configuration file are ignored (within the context - see the notes below for an explanation of this).

The default is off, so if you will be using FRCA reverse proxy cache you should explicitly turn this feature on with the directive FRCAEnableProxy on

Example 1: FRCAEnableProxy on
This example enables use of FRCA proxy for the server configuration section for the server instance.

Example 2:
<virtualhost 1.2.3.4>
FRCAEnableProxy on
</virtualhost>
This example enables use of FRCA proxy for the virtual host 1.2.3.4 section for the server instance.

Notes:
- Virtual hosts do not inherit the FRCAEnableProxy setting from the server configuration.
- If FRCAEnableProxy is set to off in the server configuration section, only FRCA directives in server configuration section are ignored.
- If FRCAEnableProxy is set to off in a virtual host section, only FRCA directives in that virtual host section are ignored.

The next foil give a summary example of a FRCA HTTP server set of directives configuration and a web request processing scenario.
FRCA Configuration Example

Configuration file
HTTP server: ITSO99

1. Listen 10.5.xx.zz:8080 FRCA

2. FRCAEnableFileCache On

3. FRCACacheLocalFileStartup /ITSO/itso99/ITSOco/Downloads/*/*.html

4. FRCACacheLocalFileRuntime /ITSO/itso99/ITSOco/People/*

5. FRCAEnableProxy On


7. FRCAPasswordCacheRefreshInterval /servlet/ 300

8. FRCAPasswordPass /cgi-bin/ http://asyy.itsorstr.ibm.com:9999/cgi-bin/

9. FRCAPasswordCacheRefreshInterval /cgi-bin/ 180
Notes: FRCA Configuration Example

(1) Listen 10.5.92.14:8080 FRCA
Specifying Listen directive with the parameter "FRCA" enables FRCA cache for this port.

(1) FRCAEnableFileCache On
This directive enables FRCA cache for this server instance ITSO99. The other directives for specific settings of FRCA all depends on this directive is on or off.

(2) FRCAEnableLocalFileStartup /ITSO/itso99/ITSOco/Downloads/*.html
By specifying this directive, the files that have .html extension in the directory /ITSO/itso99/ITSOco /Download are all cached when you start the server ITSO99.

(3) FRCAEnableLocalFileRunTime /ITSO/itso99/ITSOco/People/*
This directive makes all files in the directory /ITSO/itso99/ITSOco/People available to be cached when they are accessed.
In this example, the files in the subdirectory Employees are not cached because file name matching is not recursive.

(4) FRCAEnableProxy On
This directive enables FRCA proxy.

(4) FRCAProxyPass /servlet/ http://10.5.92.14:8080/servlet/
In this example, specifying /servlet in URI causes to run a servlet on the application server. By specifying the directive FRCAProxyPass like this example, the result of the servlet can be cached in the NFC for certain period, that is specified by the directive frcaproxycacherefreshinterval.

Note: In this directive of the example, the target URL has the same IP address and port as the ones this server listens.
In this case, FRCA should understand that this URL is of the same server, and passes the request to the correct route without any looping problem.

(4) FRCAProxyCacheRefreshInterval /servlet/ 300
As described above, this directive specifies the interval of refreshing cached data of FRCA proxy.

(5) FRCAProxyPass /cgi-bin/ http://as21.itsoroch.ibm.com:9999 /cgi-bin/
By specifying this directive, the request for CGI program is rerouted to the target host as21.itsoroch.ibm.com:9999, that is different iSeries, and the result is cached in the NFC in the source system.
HTTP Server Logging enhancements

- Log rollover
  - Configure log files to be closed and new log files opened
  - Hourly, Daily, Weekly, Monthly
  - Default is Daily

- Log maintenance (archival)
  - Configure directory where the server does log file maintenance
  - Can maintain by 2 categories
    - Age
    - Size

- Maximum log size
  - Server stops logging when the log file size reaches the maximum

- Logging to QSYS source physical files
Notes: HTTP Server Logging enhancements

This foil lists some of the HTTP Server logging capabilities. At the time this presentation was published (prior to V5R2 general availability), see additional information in Information Center.
Additional references

WebSphere Application Server for iSeries ->

e-business for iSeries ->
improvements equivalent to the ratios stated here. Photographs shown are of engineering prototypes. Changes may be incorporated in production models.

The amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance.

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