

# Web Services on NonStop Platforms

**Bill Woo**

Strategist  
NonStop Enterprise Div.  
Enterprise Storage & Servers



# What's a web service

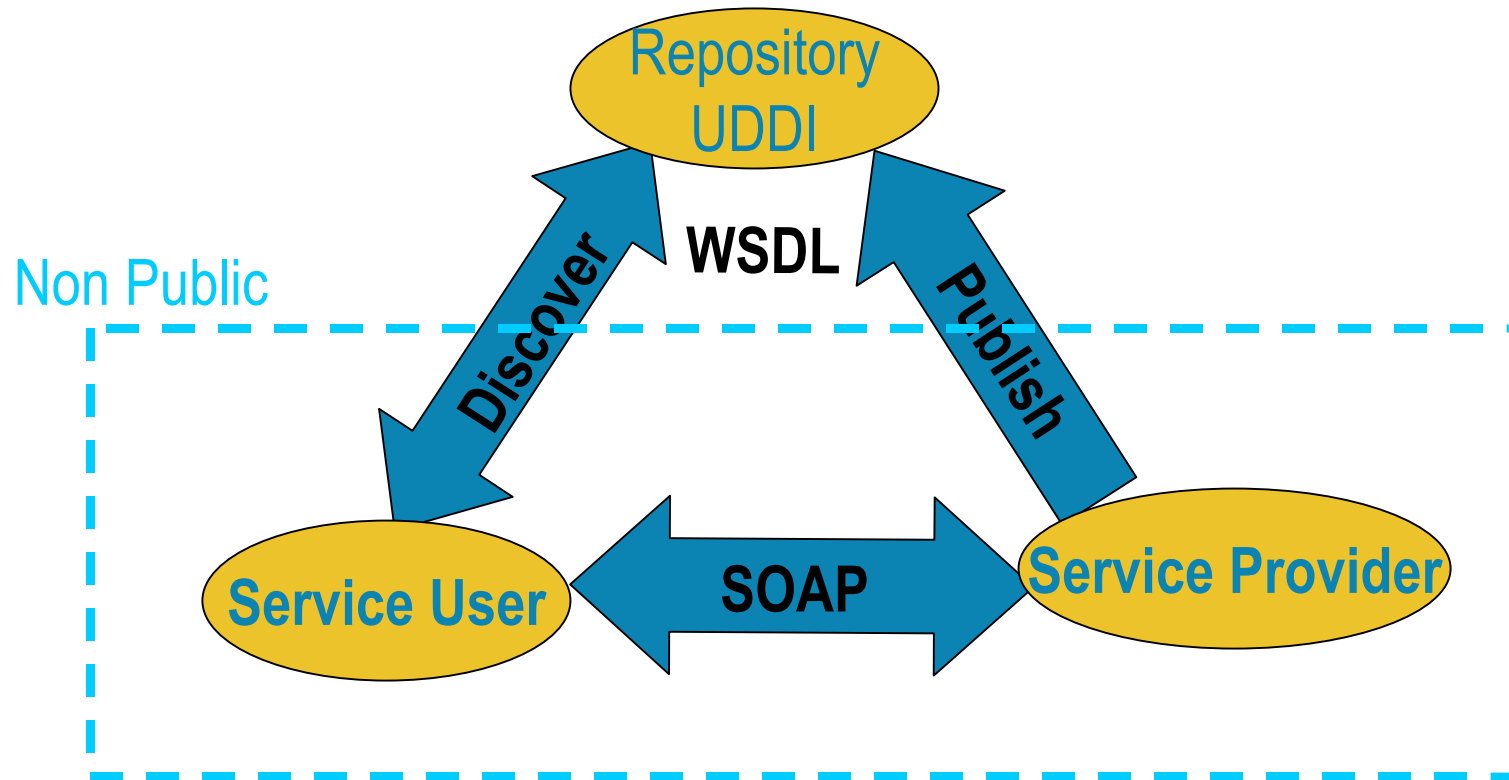
## ■ The user's viewpoint

- “I want a simple, discrete result/answer by calling for it via the web”
- Examples:
  - **Give me the temperature in Paris**
  - **I want two tickets to the Opera**

## ■ The supplier's viewpoint

- “I can provide a simple, discrete result/answer for you by responding to you via the web”
- Examples:
  - **I provide maps from A to B**
  - **Here's my invoice for X**

# The Web Services Triangle



# Web Services Marketplace

- The hullabaloo is around external web services
  - Offer a web service to “the world”
  - e.g., *temperature in Paris, map to nearest restaurant from ATM*
- The spade work is happening around internal integration
  - the *intraprise*
    - Breaking down the internal silos
      - Database and application
        - Often a mess
        - Often political rather than technical
  - Use standards instead of proprietary integration tools; keep it simple

# Web Services Myths

## ■ Myth # 1: Web services is new

Fact: Web services is a distillation of a lot of enterprise level “integration” work that we’ve all done for years

## ■ Myth # 2: Web services has too many holes; it would cause IT disruption, not help

Fact: IT already has many disruptions trying to get things working together; many enterprises are using web services in development and in production successfully. Standards matter. Yes, there are things you’ll need, but you can do work now.

## ■ Myth # 3: Interoperability is an illusion

Fact: Web Services standards facilitate interoperability beautifully. All vendors support the standards and they do work together well. And they are simple to use.

## ■ Myth # 4: We’ll have to re-write “whole applications” to use web services

Fact: Legacy applications can be web enabled with web services tools and standards in minutes – literally – with no change to existing code!

## ■ Myth # 5: Web services is a grand scheme to solve all problems

Fact: It is just another technology in our ever constant pursuit of how to do things better. It’s a neat one but just one in the process of progress.

# Web Services Essentials

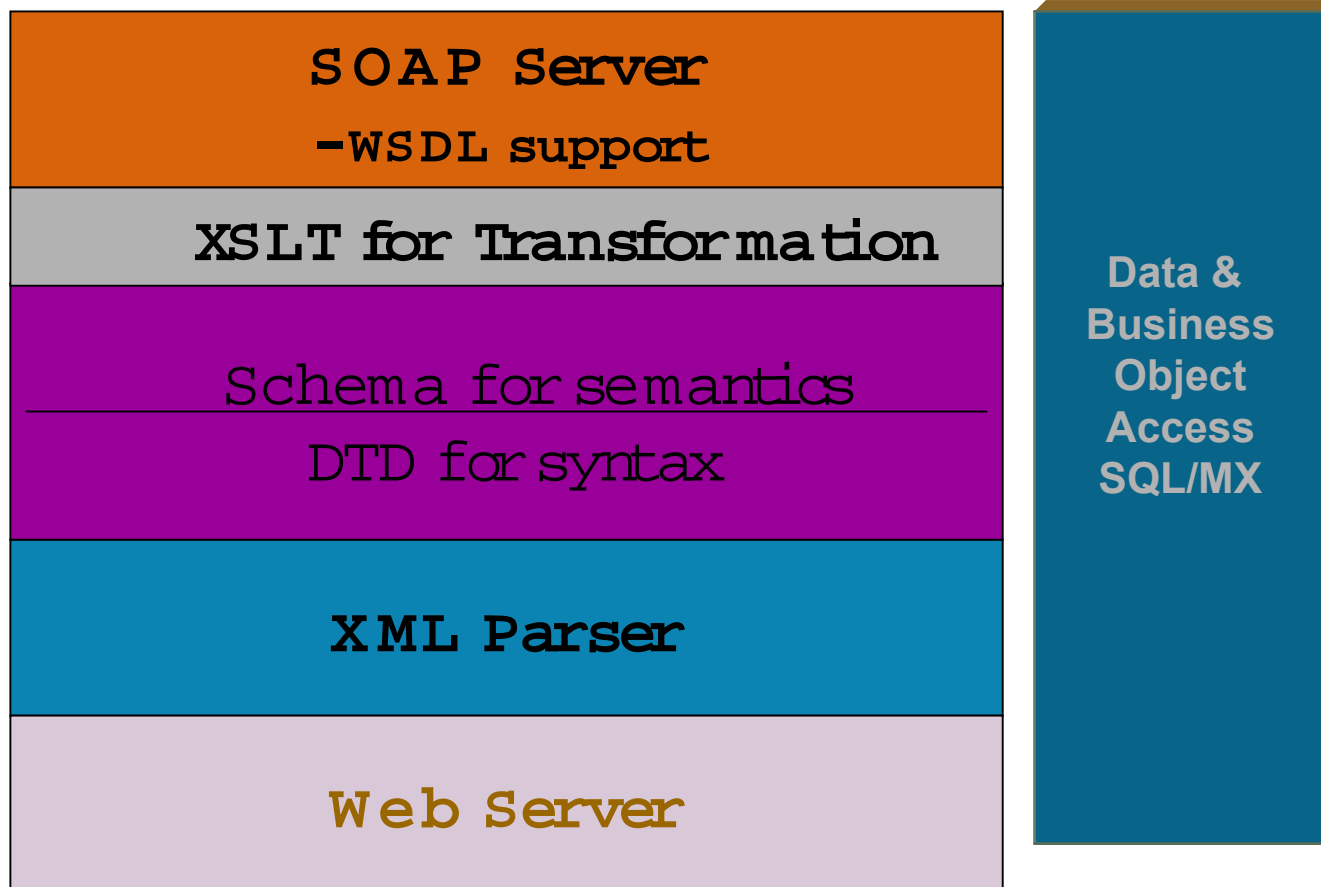
## ■ To get started

- Web Server, SOAP Server, XML Parser, WSDL support, XSLT support
- Servlets support, JavaServer Pages support, Java Messaging and Java Mail support

## ■ To get serious

- Work Flow support, Security support, Life Cycle management
- Repository, UDDI support
- Business rules, Complex transactions, ...

# Bare necessities, the building blocks

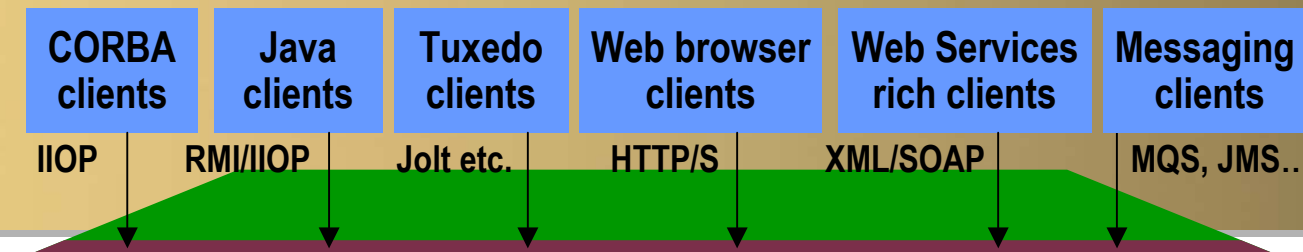


# XML, the magic underneath

- A self-describing information transfer language
  - With simple tags [symbols], the data is identified and delineated
  - The *reader* can (easily) pull out the data
  - If the format changes (e.g., an invoice), the tags tell the reader how to still access the data
- Maintenance of applications is simplified
- Changes to programs are easier
- The same message (e.g., invoice) from different sources  
(with different formats) can be *read* by the same program

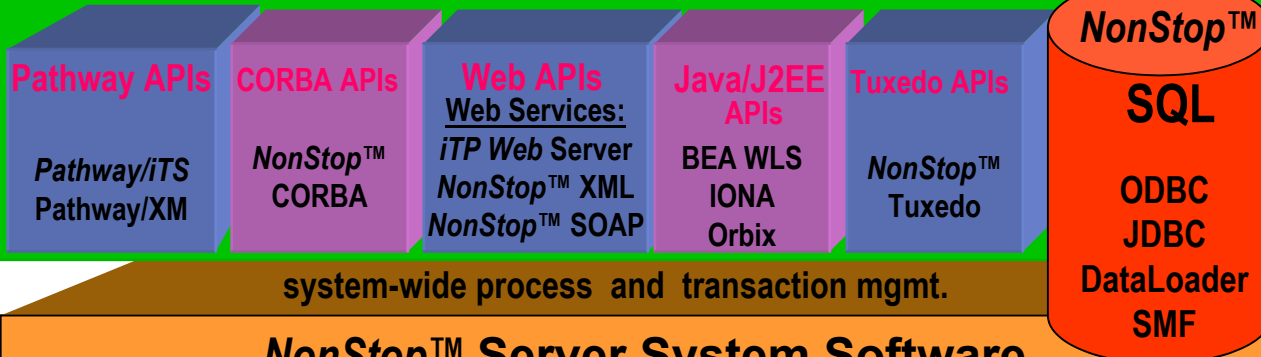


# NonStop Server



Applications – standard APIs / protocols

## Middleware Services



system-wide process and transaction mgmt.

## NonStop™ Server System Software



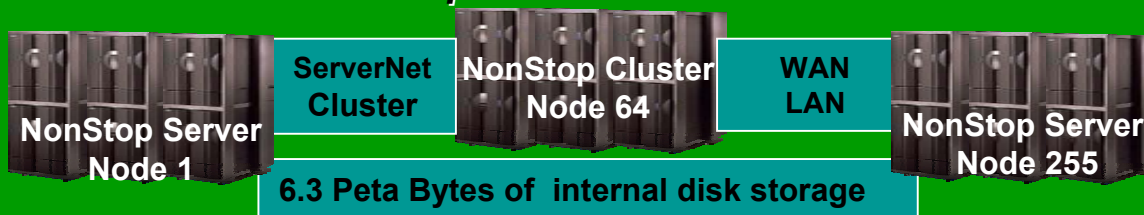
Guardian API

UNIX (Linux) API

NonStop™ Kernel – OS cluster-wide message system Mix Workloads

From 2 to 4080 self checked CPUs (MIPS R14K) > 500 MHz  
up to 16GB/CPU, 65TB Max physical memory

## NonStop™ Server Hardware



## Real-time Global Enterprise Applications Environment



Workstation-based Enterprise Tool Kit

- TP & DB infrastructure scales across distributed nodes
- Integrated System Environment transparently manages unified application image across distributed system
- System provides transparent parallel fault tolerant infrastructure

# NonStop Web Services Product Set (1)



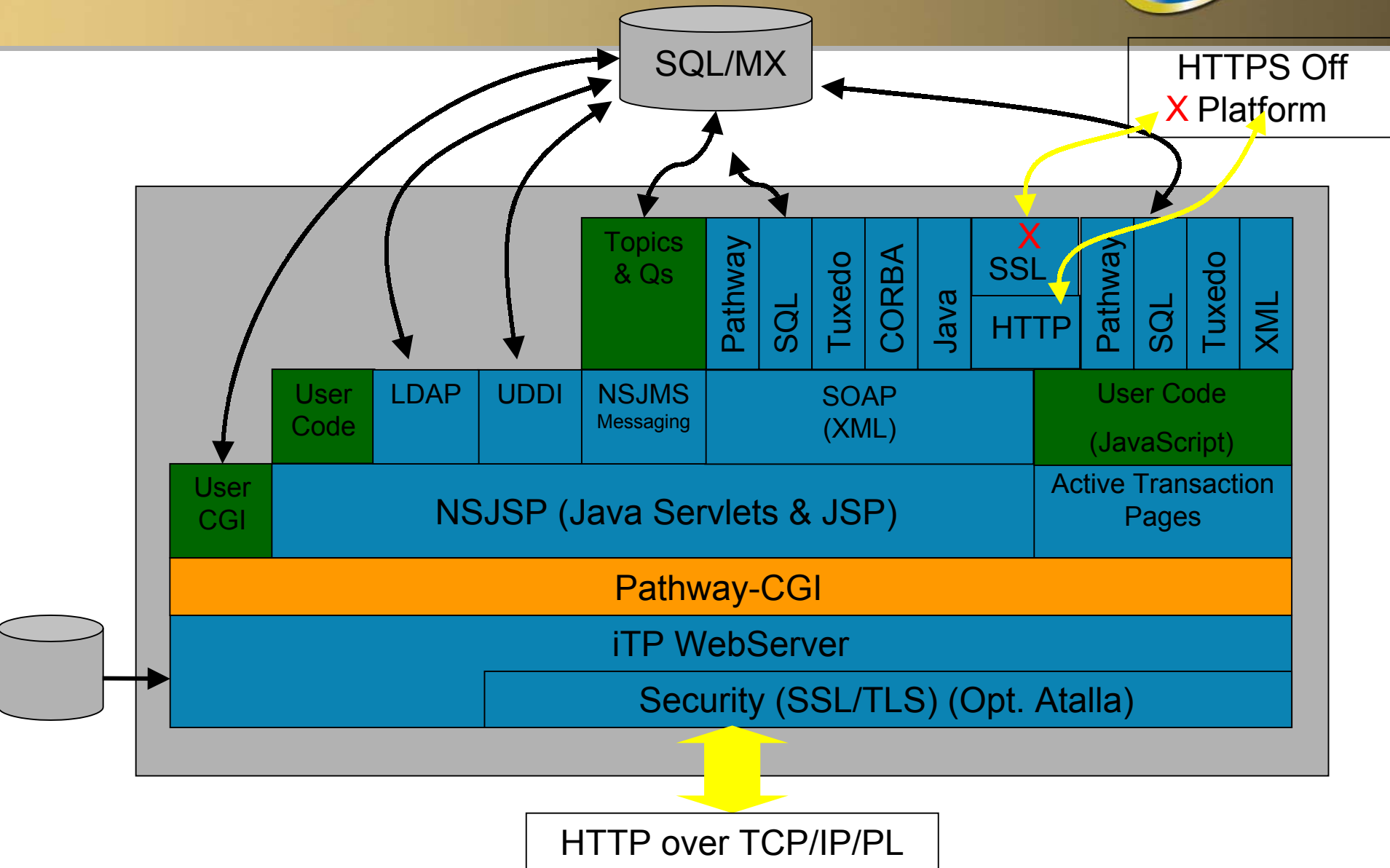
- iTP WebServer – designed on top of NonStop fundamentals
  - Fault Tolerance, data integrity, scalability
  - No cost with system, security extra (SSL and Atalla)
- Simple Object Access Protocol (SOAP) Server
  - Connects XML/SOAP messages to application modules
  - Web Services Description Language (WSDL) support
  - Java and C++ versions
- XML Parser – Java and C++ versions
  - Opens up a document *coded* in XML
- eXtensible Stylesheet Language Translation (XSLT)
  - Make presentation layer easier

# NonStop Web Services Product Set (2)



- Java support for building applications
  - Java Servlets
  - J2EE [J2EE includes both Servlet container and EJB container]
  - Java Message Service
  - Java Mail
  - Other application space support
  - CORBA, C++, COBOL, Tuxedo

# The architecture



# Our Web Server

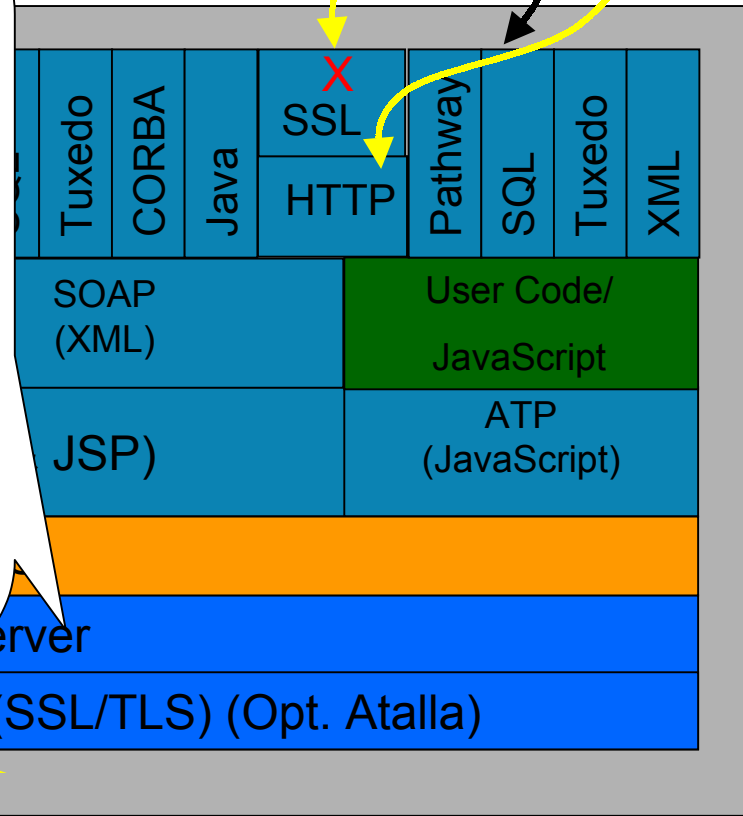


HTTPS Off  
X Platform

SQL/MP Only

## iTP Secure WebServer

- provides standard HTTP(S) server interfaces for the NSK
- >1000 unique customers since 95; 12-19% of total installed NSKs.
- ~820 unique customers since Jan'00; comprising 2430 licenses
- 100% growth since end of CY'00; 74% in CY'01, 15% in CY'02 to date.
- based on top of TS/MP 2.0 technology; WebServer runs as a serverclass



HTTP over TCP/IP/PL

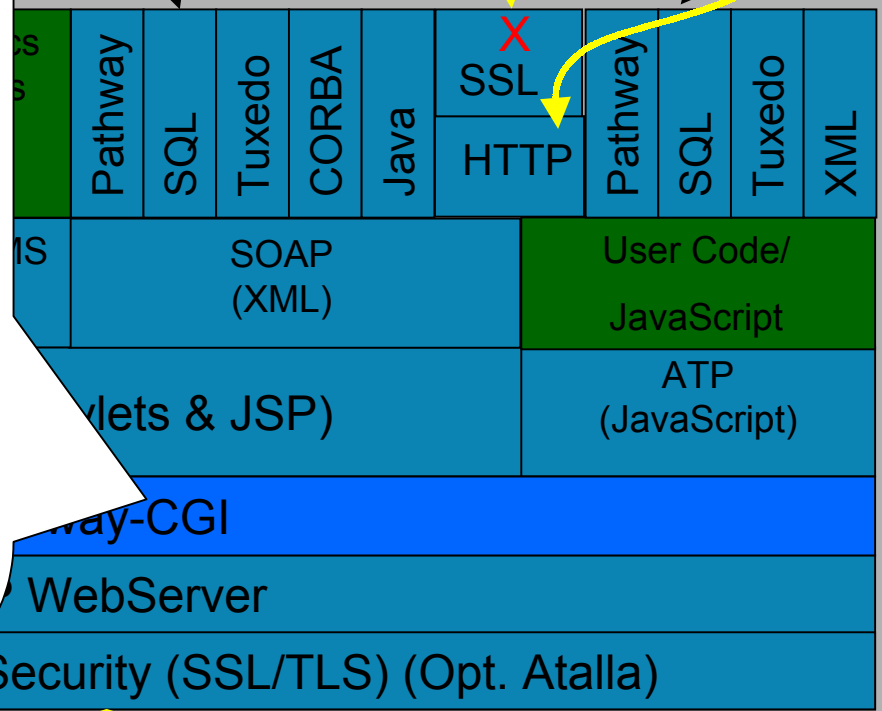
# CGI

## Pathway-CGI

- provides standard, simple, CGI programming interfaces
- allows C, C++, Cobol application development
- applications run as Pathway serverclasses
- foundation for all other application development environments
- part of base iTP WebServer product.
- was the genesis for Unix "fast-cgi"



X - SQL/MP Only



# Servlets

Off

•key customers  
MyTravel, Efund, IDX, SignalSoft, Inova Health...

## NSJSP

- provides standard Java Servlet 1.2 and JSP 1.1 programming APIs
- allows Java Web programming and easy portability from other Java app servers
- ported open source code (Tomcat); enhanced for scalability and FT in NSK environment
- Tomcat is the reference implementation from Sun put into the open source domain
- we are "on the wave" with this technology
- very easy to use and explain to customers; customers who have used Apache/Tomcat elsewhere really understand what NSJSP is
- first released CA in Nov'01; ~56 licenses. Older product (SSC for Java) available since 97.

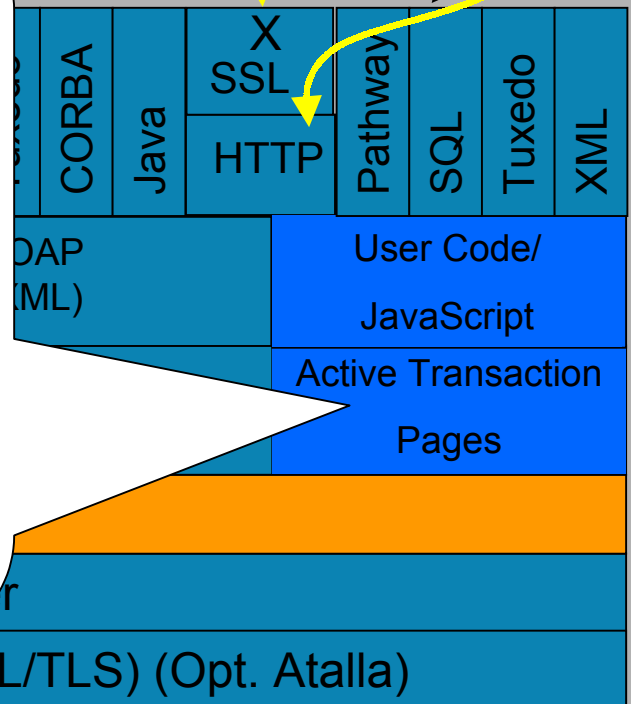
## iTP Active Transaction Pages

- provides Rapid Application Development JavaScript-based programming environment
- has specific APIs for key NSK subsystems and external HTTP
- first released Nov '98
- 100 unique customers since Jan'00;
- 102% growth since end of CY'00;
- 75% in CY'01, 16% in CY'02 to date

SQL/MX

HTTPS Off  
X Platform

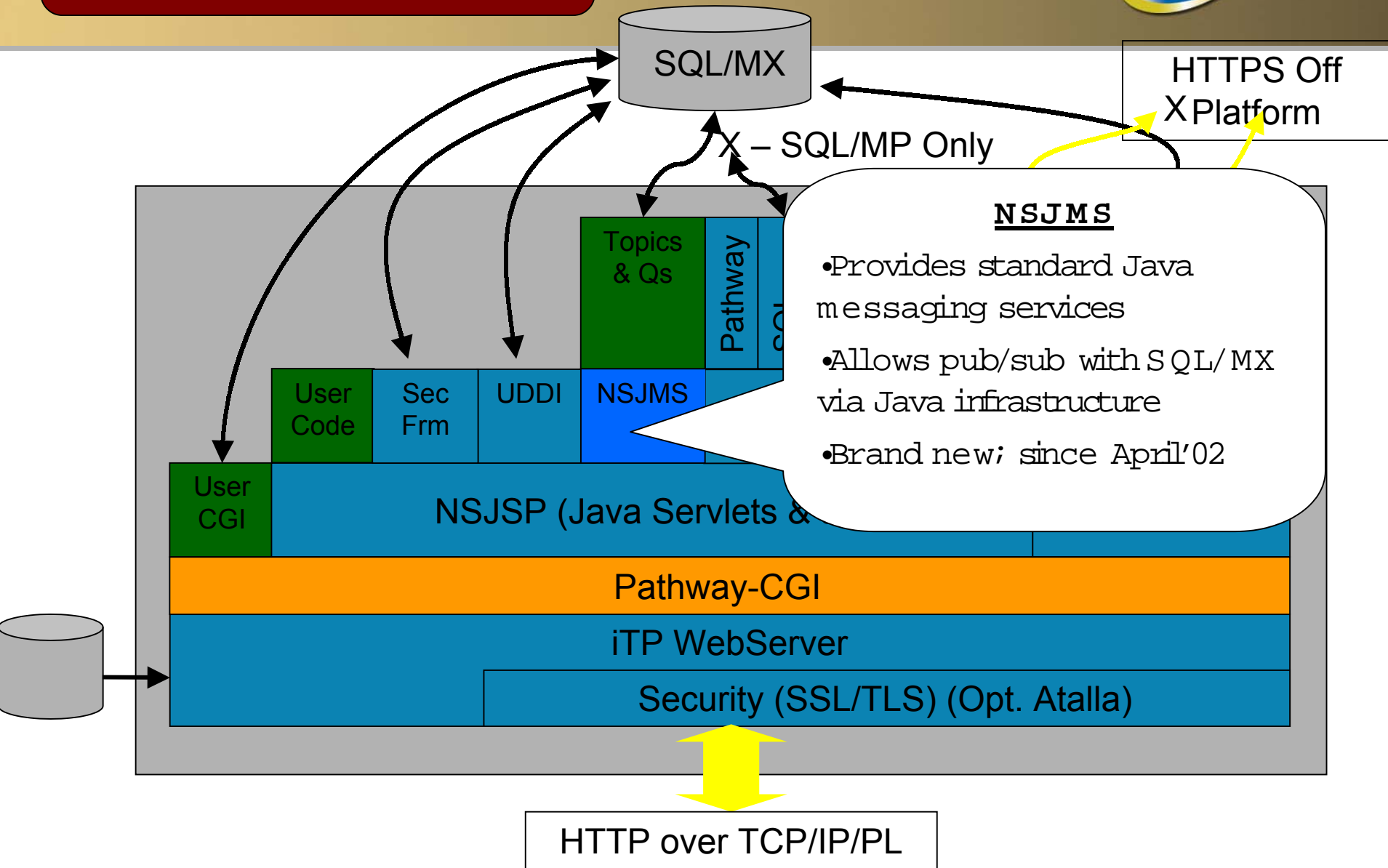
SQL/MP Only



HTTP over TCP/IP/PL



# Java Messaging



# SOAP

•key customers:

Genuine Parts, Optimark,  
Motorola, Sprint, Boeing,  
Rabobank, Home Depot,  
London Stock Exchange,  
Braathens, Future  
Electronics, Twinsoft,  
NTT, Deutsche Bank AG,  
Mark Travel, Worldcom

SQL/MX

HTTPS Off  
X Platform

X - SQL/MP Only



SOAP  
(XML)

User Code/  
JavaScript

(Java Servlets & JSP)

ATP  
(JavaScript)

Pathway-CGI

iTP WebServer

Security (SSL/TLS) (Opt. Atalla)

HTTP over TCP/IP/PL

# HP Web Services Partners

- Insession
- Has a set of products in the Guardian space
  - - HTTP handler, SOAP/XML support
  - - Tools to build web services in the Guardian space
  - - Developing a security framework

# Web Services – “a programmable application logic accessed by using standard Internet protocols”



## key considerations:

1. Web services are not new (the standards to build them are new)... think about same concepts – but based on standards!
2. Web services are not a substitute for a business model... think a means to an end, but not the end in and of itself
3. the most logical place to deploy web services now is behind the firewall... think integration
4. Web services are an alternative to “rip and replace” (existing applications and legacy code)... think leverage
5. Web services span systems, divisions, geographies... think end-to-end trips (transactions, performance...)
6. Web services are not a replacement for Java, CORBA, Tuxedo... think about granularity!

# Conclusion

- The sophisticated standards are coming
  - Business process management [work flow], complex transactions, security
  - In the meantime, we have products based on simple standards ready to go
  - Internal application integration
  - Breaking down barriers within
- The methodology is peer-to-peer based
  - Has the potential for interconnecting
    - Legacy apps, different vendor platforms, Java and .NET
  - Has the potential for facilitating development
    - The standards are simple, ease of development

# Why NonStop?

- ✓ All the web-tier software rests on a solid base that leverages Transaction Services (TS/MP) capability
- ✓ We offer a set of building block products that will help you develop according to your needs



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