

Intro to DataPower

IBM WebSphere Connectivity and
Integration Appliances



Agenda

What is a DataPower Appliance?

Models and Features

Appliance Management

How to learn more

Datapower Demo



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What is a DataPower Appliance?

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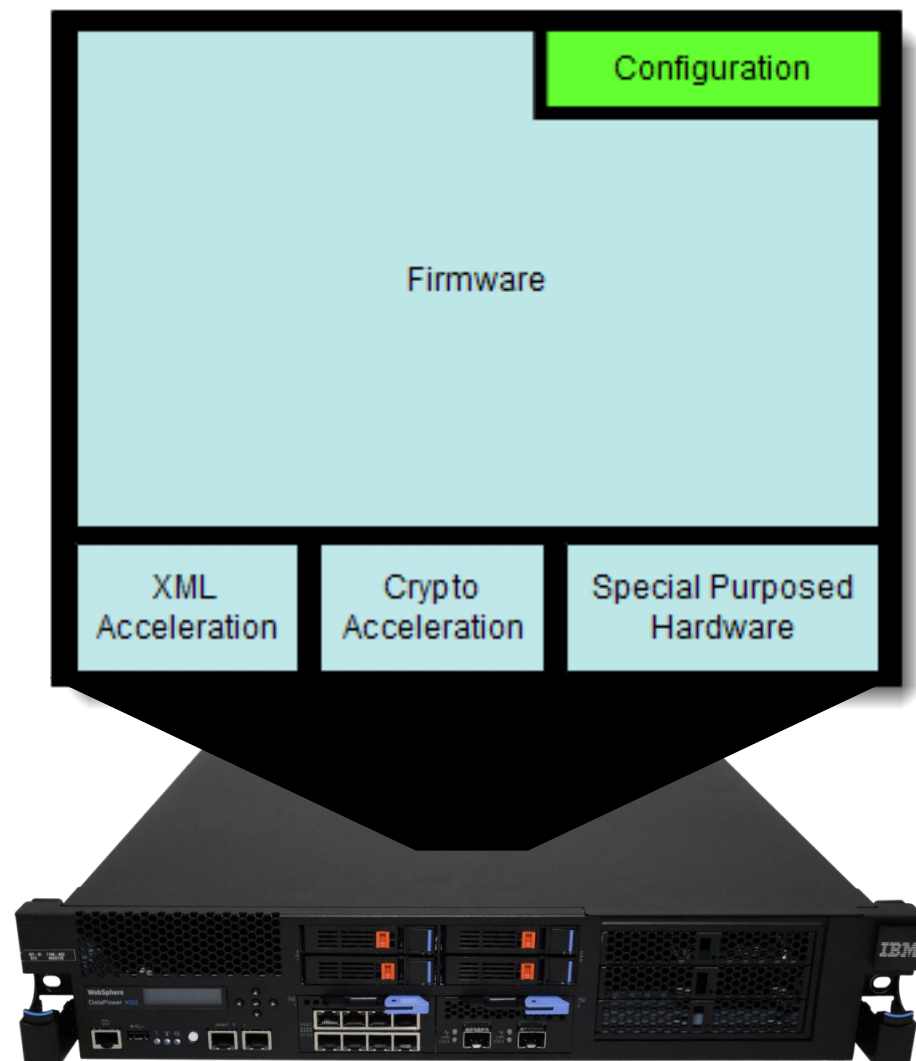
How to learn more

Datapower Demo



The IBM WebSphere DataPower organization makes appliances

- Simple architecture:
 - microcode firmware + purpose-built hardware
- Delivered from the factory with everything you need to connect to the network and start working
 - No need to provision anything but the Ethernet network and CAT cables to get started
- All computationally-significant components sealed within a temper-proof casing
 - Chips
 - Memory
 - Boards and cards
 - Flash-based file system (signed and encrypted)
 - Parsing and xform accelerators (patented)
 - Cryptographic accelerators (patented)



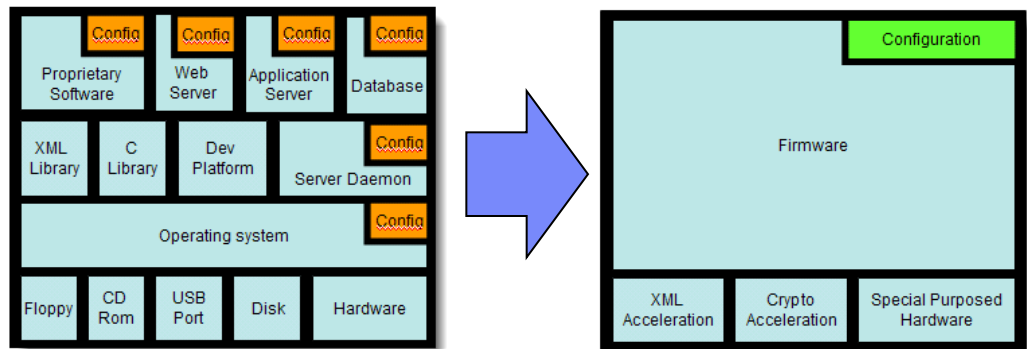
But simple does NOT mean lacking in functionality

- DataPower appliances have been the best selling WebSphere product since the DataPower company acquisition in 2005
- Guiding philosophy is to take rote, repeatable integration tasks and lock them down in the appliance form factor, including:
 - Services gateway functions
 - Service Bus (ESB) functions
 - B2B gateway functions
 - Edge optimization functions
 - Web application gateway functions



Appliance “lock down” means:

- Removing need for commodity code
- Removing reliance on general purpose operating systems and run times
- Porting to purpose-built firmware
- Simplicity = BIG TCO SAVINGS



Configuration-driven approach speeds time to market

- Enforce security standards with **zero coding**
- Uses intuitive pipeline message processing
- **Import/export** configurations between environments
- Transaction probe shows message content between actions for debugging

The screenshot displays the configuration interface for a rule named "SecureServicePolicyRequestRule". The rule direction is set to "Client". The pipeline consists of several actions: Filter, Sign, Verify, Validate, Encrypt, Decrypt, Transform, and Route. The "Sign" action is highlighted, and its configuration is shown in a detailed view:

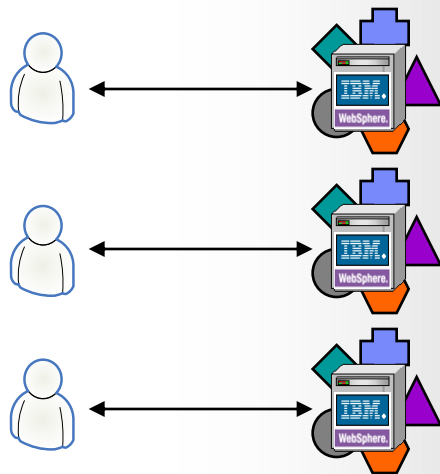
- Envelope Method:** WSSec Method (selected), Enveloped Method, Enveloping Method, SOAPSec Method, Advanced.
- Message Type:** SOAP Message (selected), SOAP With Attachments, Raw XML Document, Selected Elements (Field-Level), Advanced.
- Asynchronous:** on/off (selected).
- WS-Security Version:** 1.0 (selected), Save.
- Use Asymmetric Key:** on/off (selected), Save.
- Signing Algorithm:** rsa (selected), Save.
- Key:** (none) (selected), +, ..., Save.
- Certificate:** (none) (selected), +, ..., Save.

The pipeline starts at a "CLIENT" and ends at an "ORIGIN SERVER". The "Sign" action is the first action in the pipeline.

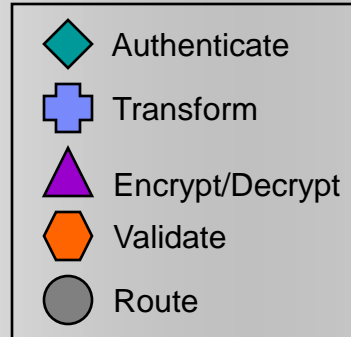
Use appliances to simplify and centralize critical functions

- Route, transform, and help secure multiple applications without code changes
- Lower cost and complexity
- Enable new business with unmatched performance

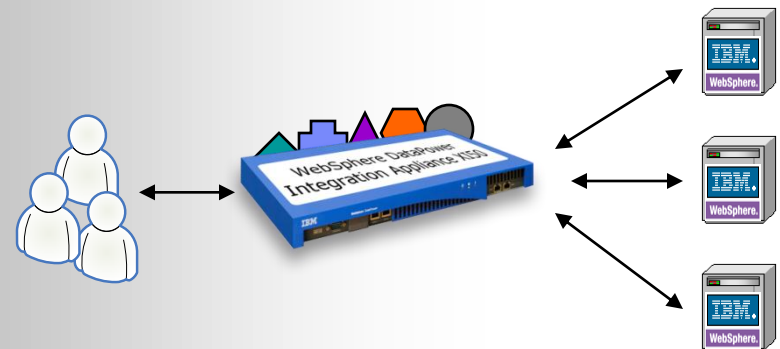
Before DataPower Appliances



Update application servers individually



After DataPower Appliances



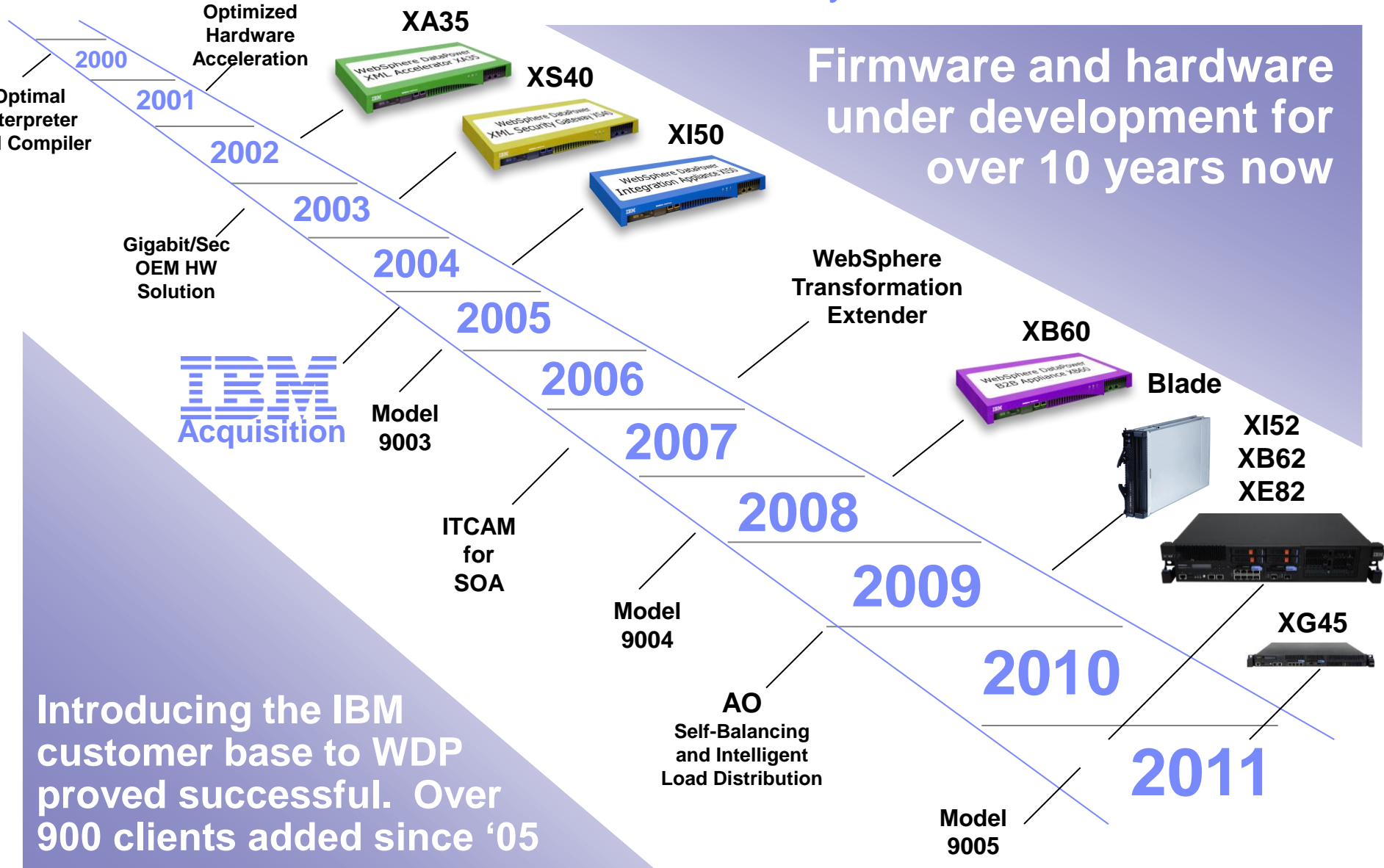
Secure, route, transform all applications instantly

No changes to applications



DataPower boasts a decade of connectivity innovation

Firmware and hardware under development for over 10 years now



Introducing the IBM customer base to WDP proved successful. Over 900 clients added since '05

WebSphere DataPower Appliances meet your connectivity needs

Security Gateway **XG45**

- Web services security
- Rich authentication and authorization
- Centralized policy management
- Entry-level SOA choice
- Built for both DMZ and Internal deployments
- Slim 1U form-factor design

Integration Appliance **XI52 / XI50B / XI50z**

- Consumable hardware ESB
- Any-to-any conversion at wire-speed
- Intelligent Load Distribution and Dynamic Routing
- Enterprise-class SOA choice
- Optional Hardware Security Module
- High-density 2U form-factor design

B2B Appliance **XB62**

- Unparalleled B2B performance
- Secure B2B messaging (EDIINT AS1, AS2, AS3)
- Trading Partner Profile management
- Transaction viewing and resending
- EDI and ebXML Support
- Native MQ FTE Integration

Edge Appliance **XE82**

- WebSphere Application Accelerator
- Designed for web applications over Public Networks and SaaS applications over Hybrid Networks
- Web Application Gateway
- Web Services Proxy
- Intelligent Workload Management

Close to 1,000 worldwide installations and growing fast



Government

- Agencies and ministries
- Defense and security organizations
- Crown corporations



Banking

- Big european banks
- Numerous regional banks and credit unions
- SaaS providers, ASPs, regulators, etc.



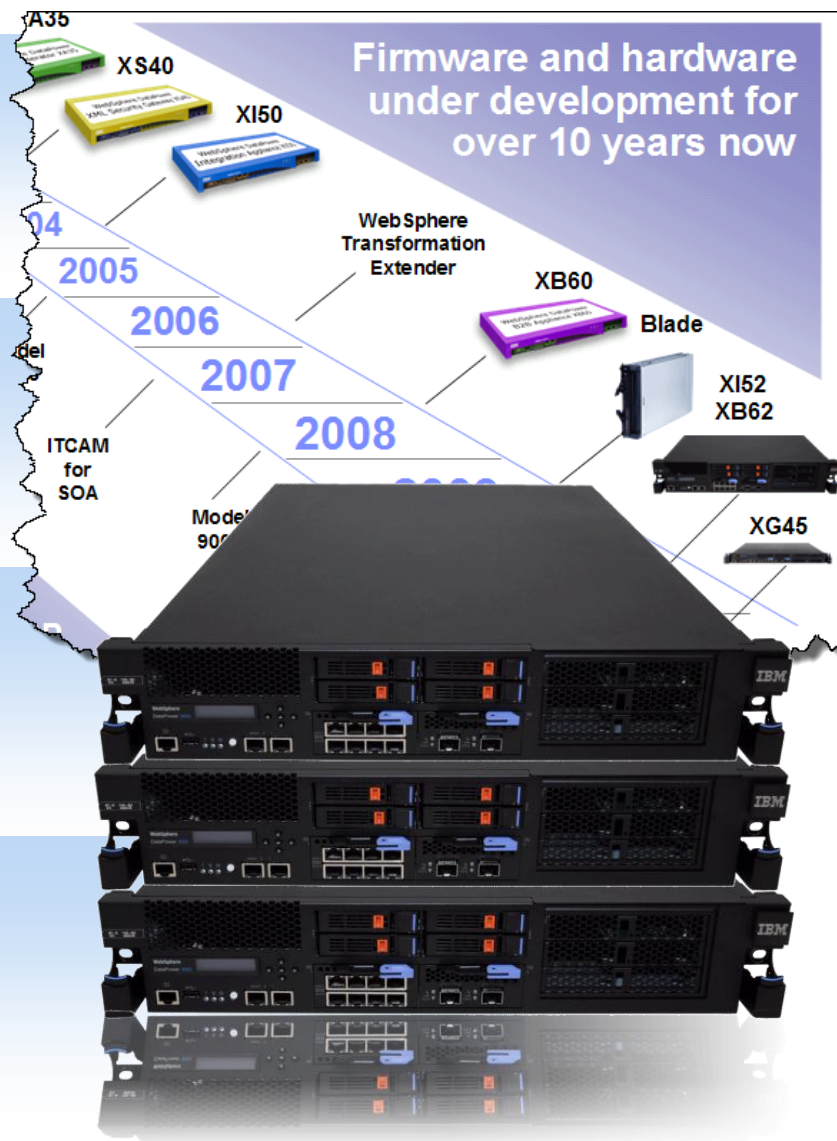
Insurance

- Used by 95% of top global insurances firms
- SaaS providers, ASPs, regulators, etc.



Many, many, more

- Retailers
- Utilities, Power, Oil and Gas
- Airlines
- etc.



DataPower appliances offer a classic SOA business case

IT Budget



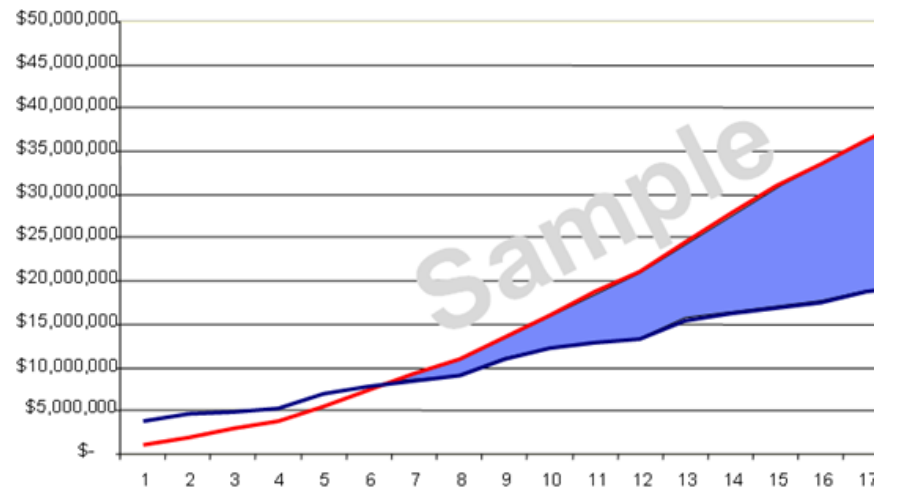
The conundrum facing CIOs:

How to get more for less when...

- Fixed costs of maintaining existing systems consume IT budgets
- Limited opportunities for new value-adding investments
- Every new investment creates additional maintenance costs

Source: Boston Consulting Group

Returns are based on implementation and maintenance cost reductions



▪ Returns are typically found by:

- Accelerating project timelines (and beginning to realize new revenues earlier)
 - Drop-in deployment, even to sensitive networks
 - Configuration of tasks that would otherwise be coded
- Reduction of project resource requirements
 - Configuration of tasks that would otherwise be coded
 - No tuning required for performance

- Reduction of existing server footprint or deferral of the need to scale up
 - Offloading of resource-intensive functions to a platform purpose-built to do them at low resource penalties
- Lowering ongoing operations costs
 - Simple architecture and low-touch maintenance model
 - Centralization of rote, repeatable integration tasks

Agenda

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Models and Features

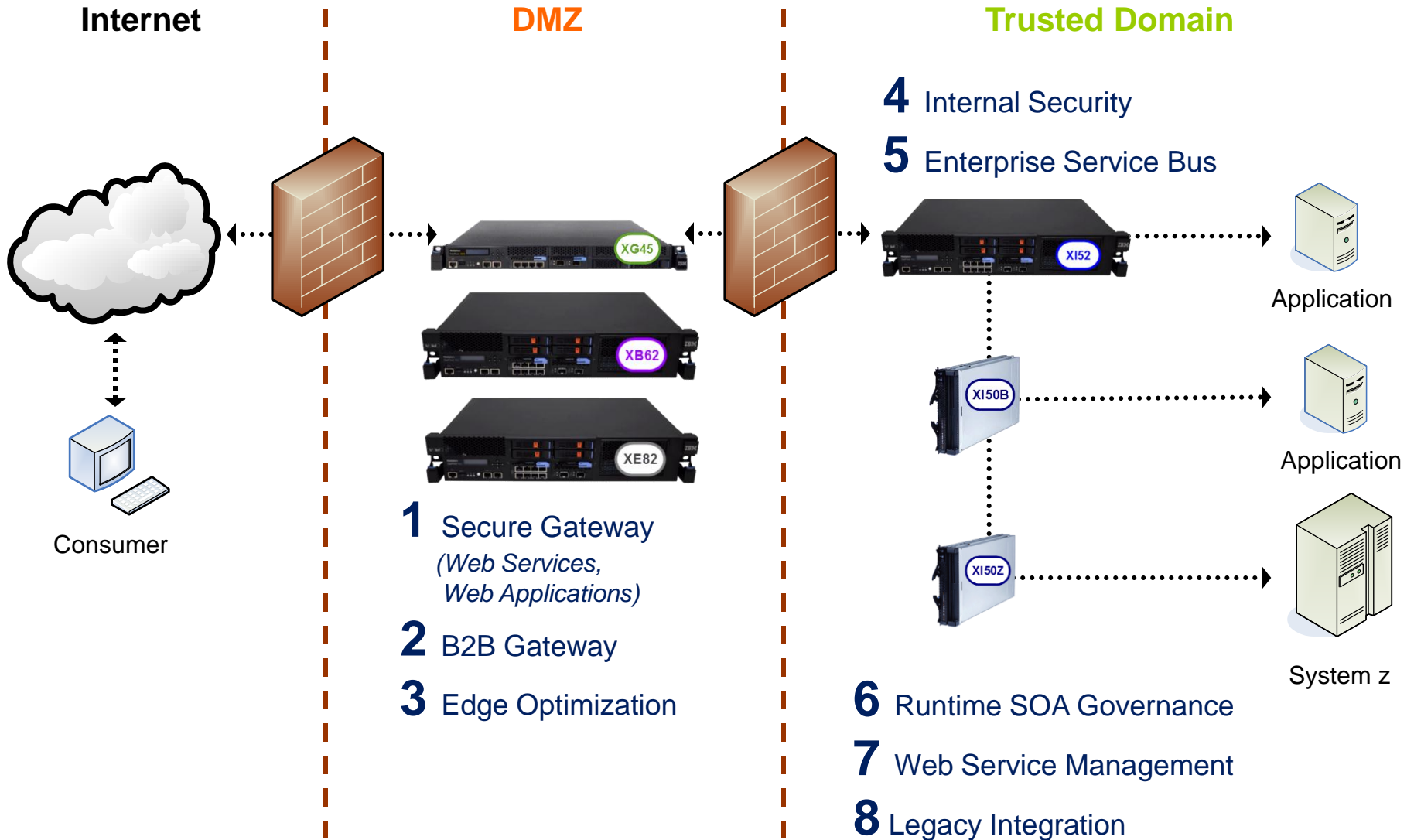
Appliance Management

How to learn more

Datapower Demo



Deploy WebSphere DataPower Appliances in a variety of use cases



The devices are ideal for deployment to less-than-fully-trusted networks

- Tamper-proof casing
- Default-off delivery from factory
- Signed and encrypted file system
- Optional Hardware Security Module (HSM)
- Certifications:
 - Common Criteria EAL 4
 - FIPS 140-2 Level 3



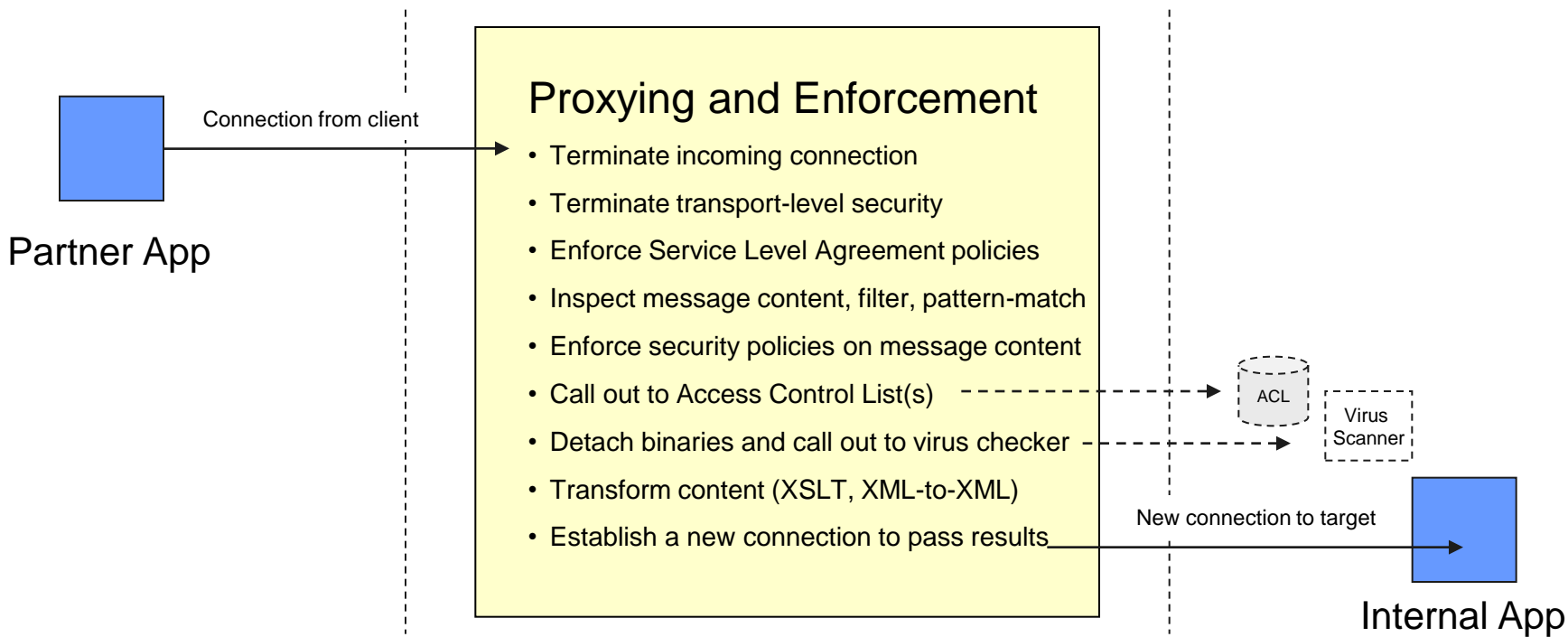
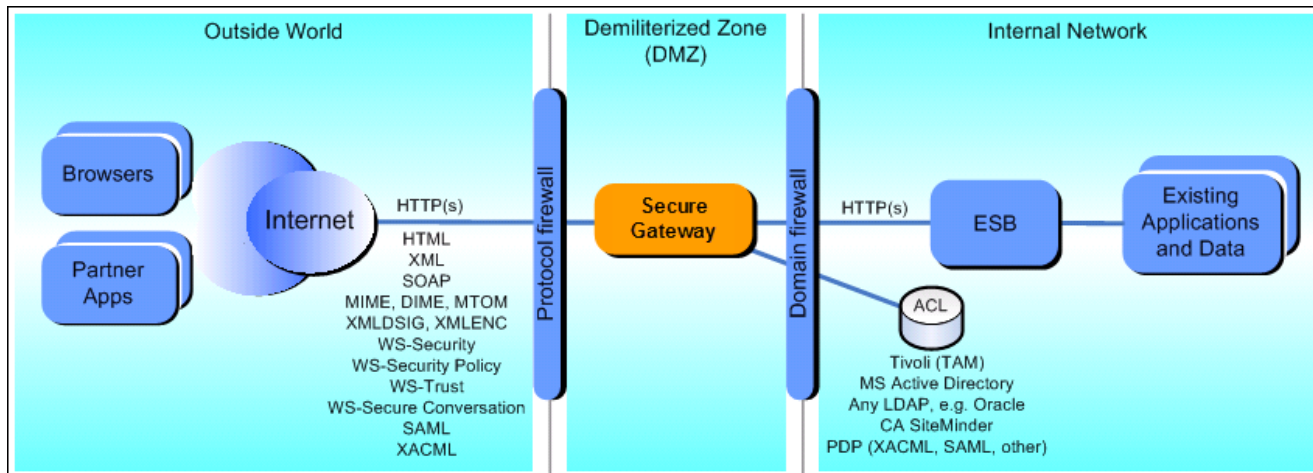


Secure Gateway



1U form factor

- 4x 1Gbps Ethernet ports
- 2x 10Gbps Ethernet ports



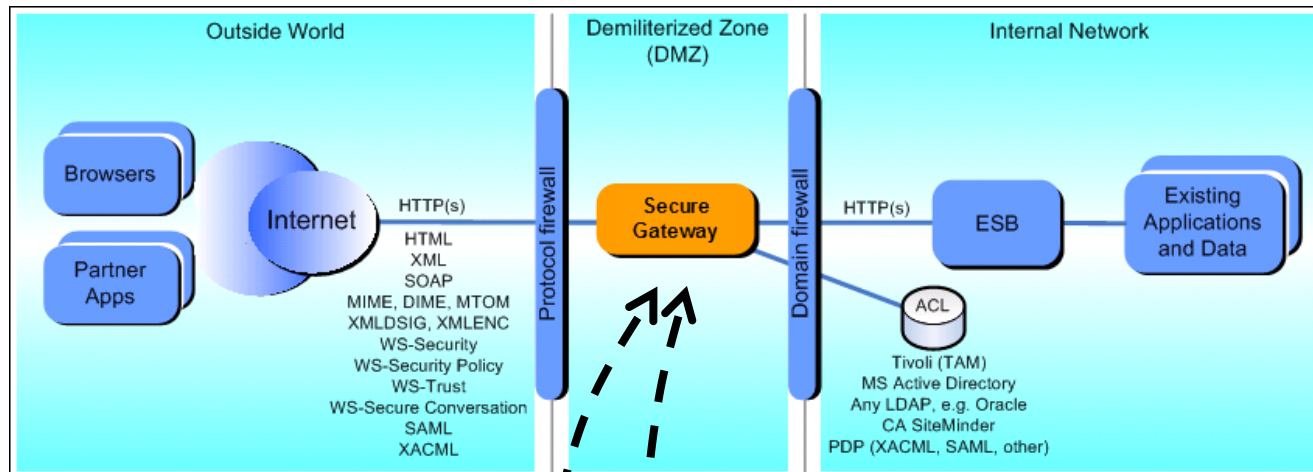
Secure Gateway



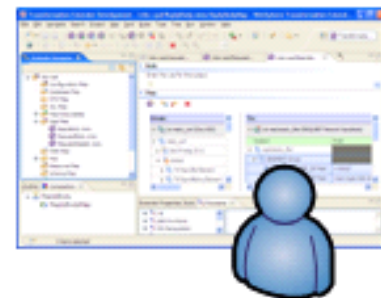
1U form factor

- 4x 1Gbps Ethernet ports
- 2x 10Gbps Ethernet ports

- Entry-level form factor
- Protocols Supported
 - HTTP(s)
 - WebSphere MQ
 - WebSphere JMS
 - FTP(s)
- Formats Supported
 - XML
 - SOAP
 - JSON
 - PKCS7 (with optional Data Integration module)
- Transformation engines supported
 - XSLT
 - DataGlue - WTX/FFD (with optional Data Integration module)



WTX Design Studio



Protect your data with cryptography and XML threat protection

- Use DataPower to help resolve **PCI compliance** issues
- Easily sign, verify, encrypt, decrypt any content
- **Configurable** XML Encryption and Digital Signatures
 - Message-level
 - Field-level
 - Headers

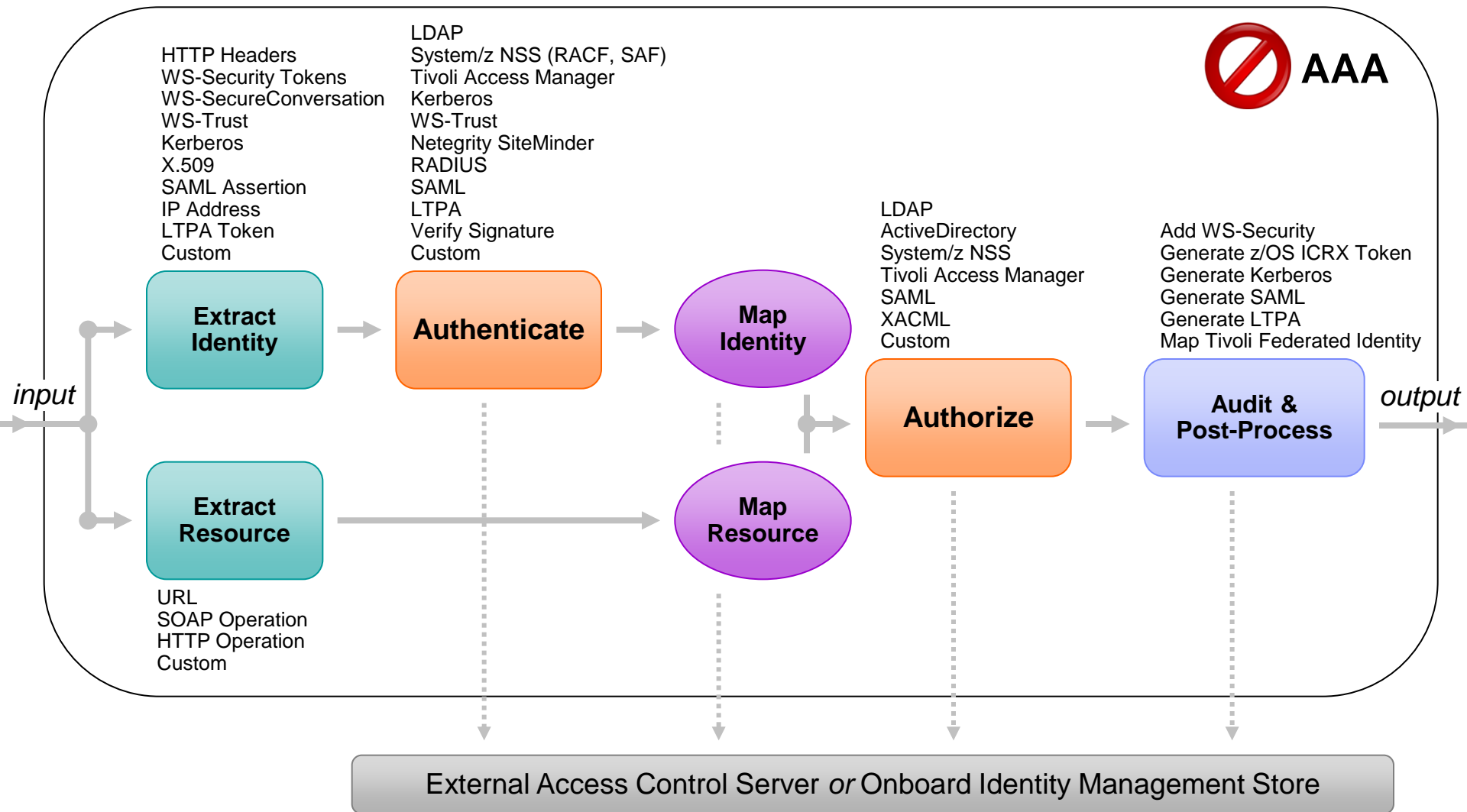
XML Threat Protection

- Entity Expansion/Recursion Attacks
- Public Key DoS
- XML Flood
- Resource Hijack
- Dictionary Attack
- Replay Attack
- Message/Data Tampering
- Message Snooping
- XPath or SQL Injection
- XML Encapsulation
- XML Virus
- ...many others



See: *The (XML) threat is out there...* by Bill Hines
ibm.com/developerWorks

Employ flexible AAA (Authenticate, Authorize, Audit) Policies

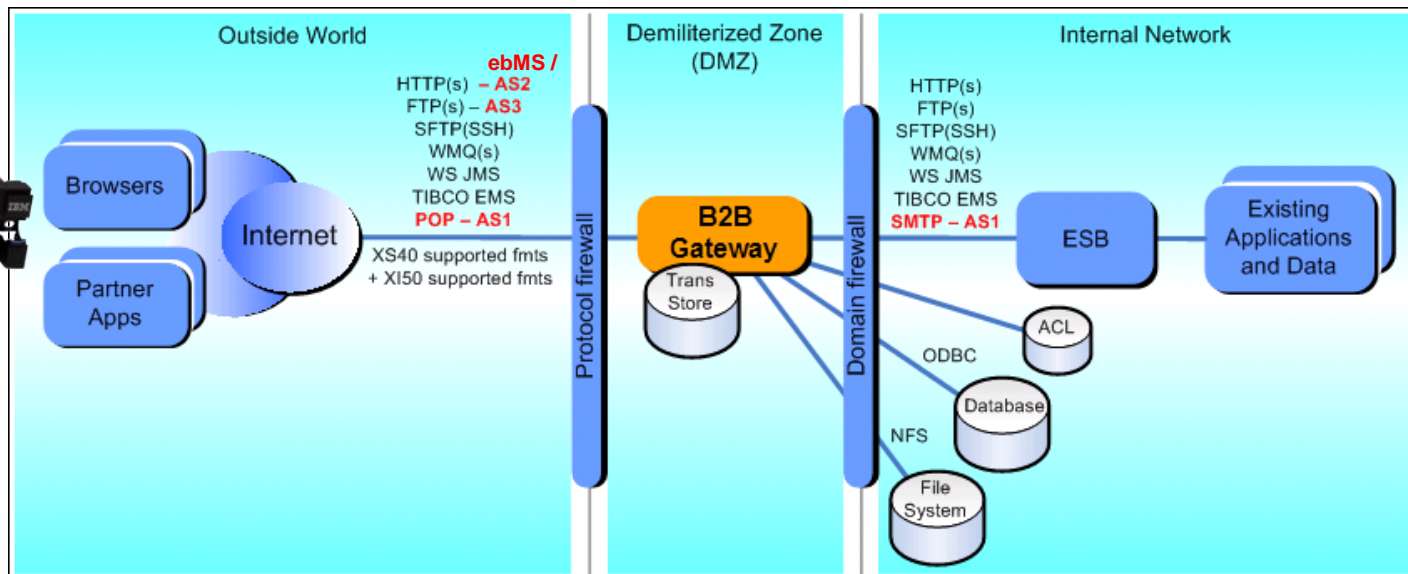


B2B Gateway



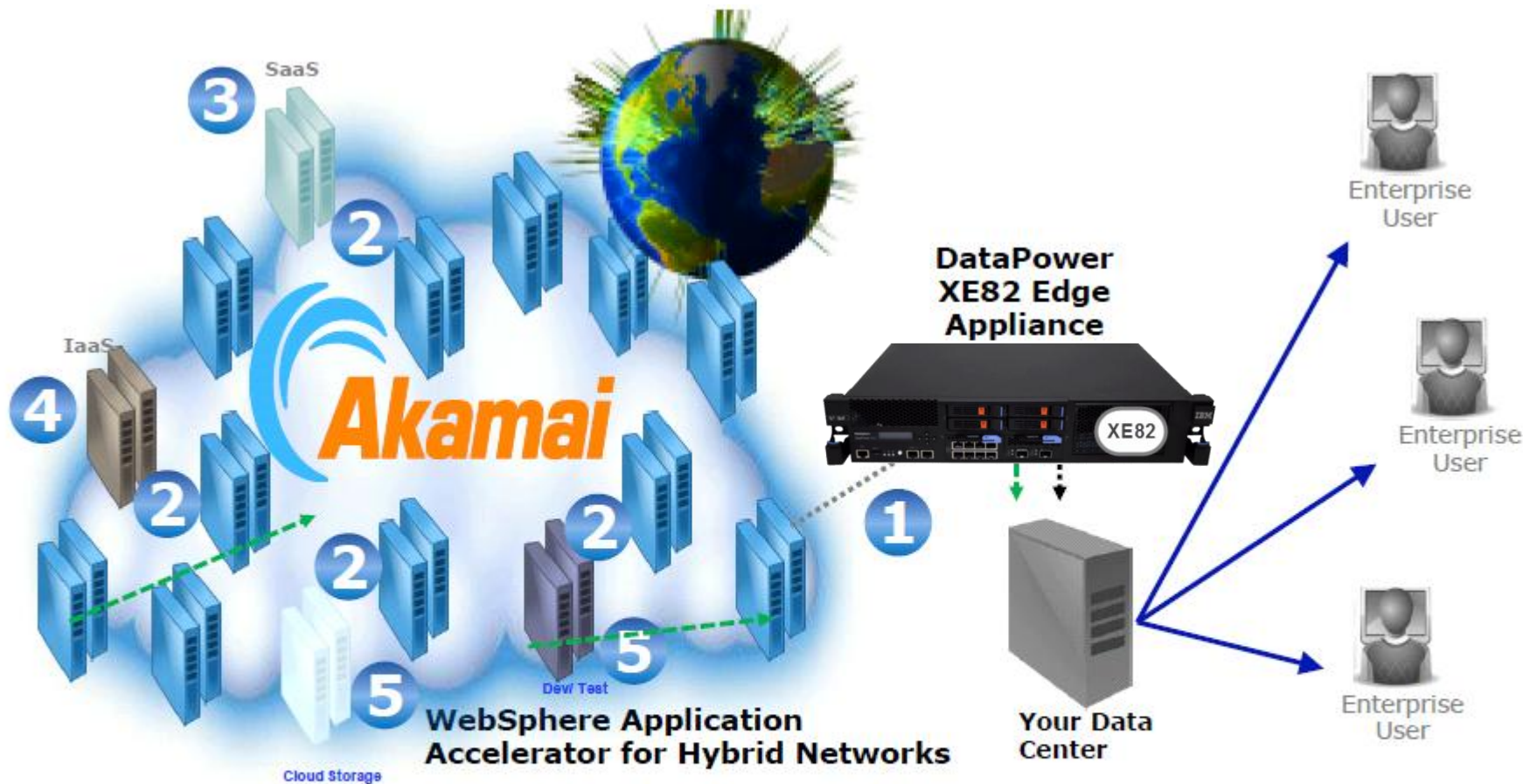
2U form factor

- 8x 1Gbps Ethernet ports
- 2x 10Gbps Ethernet ports
- More memory
- More storage



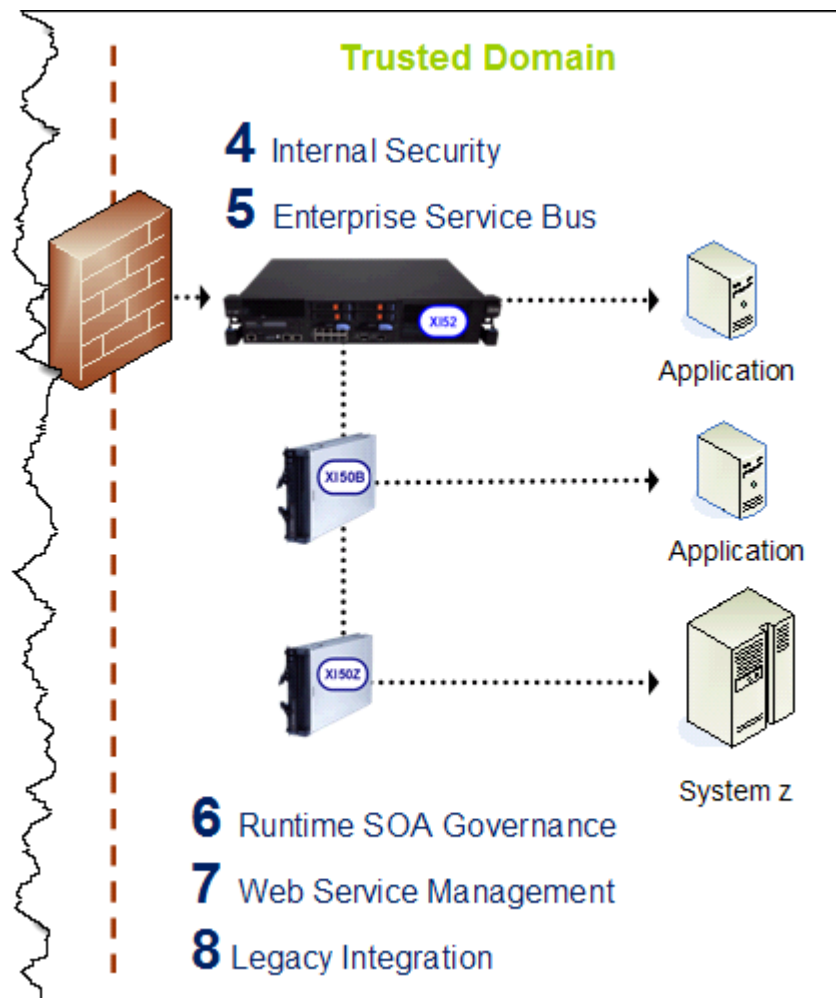
- All of the capabilities of the XG45 to proxy and enforce policies
- Partner Management functions:
 - Define partners with the web management console
 - Associate partners with network endpoints
 - Attach metadata about the partners to their definitions
- Enhanced Qualities of Service
 - Onboard persistent transaction store
 - Search messages by partner, time, etc
 - Replay messages if necessary
 - ebXML/ebMS, AS1, AS2, and AS3 protocol bindings for greater reliability across traditionally unreliable protocols
- Additional protocols supported
 - SFTP (SSH)
 - TIBCO EMS is available as an option
 - ODBC
- Additional formats supported
 - PKCS7 is included in base
- Additional transformation engines supported
 - DataGlue – WTX/FFD is included in base

Edge Optimization



The devices are equally as popular for internal use as well

- Simplified, lower-touch maintenance
 - Average of 1-2 firmware upgrades per year
- Fast, less-expensive development
 - Configuration-only development
 - Multiple references of delivery to production in less than 1 month
- Many functions in a single box



ESB and Legacy Enablement



- IBM's "drop in" ESB

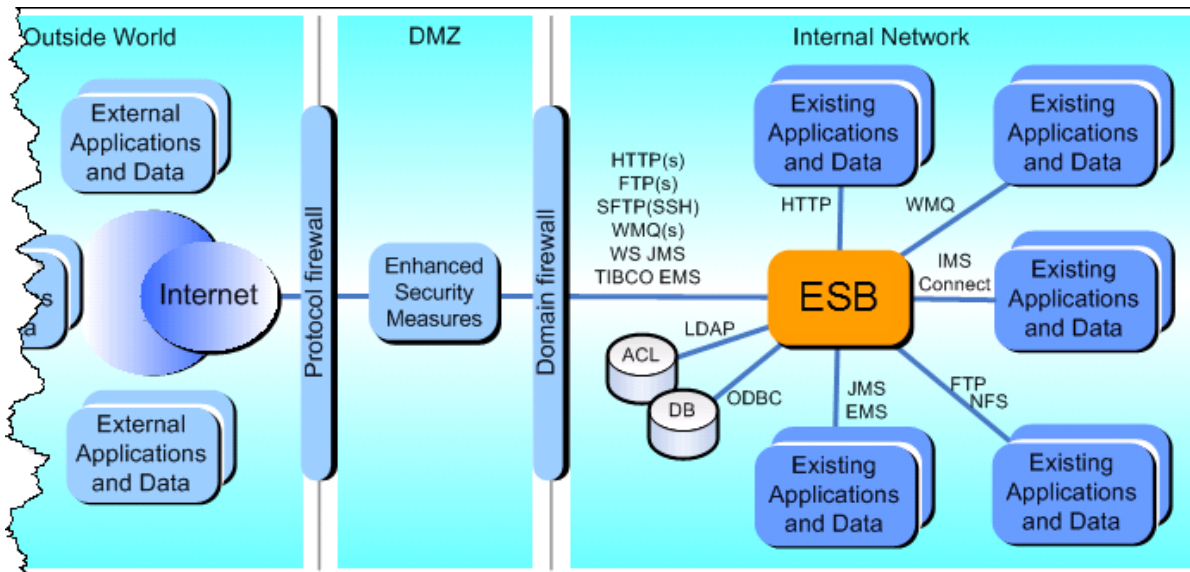
 - Simplified deployment
 - Configure your integrations, save coding for business applications
 - Integrates smoothly into any "shop" (e.g. .Net, Java, Legacy) because a complex new application server environment does not need to be learned

- Easily service-enable legacy apps

 - Quickly put web service facades over existing System Z, System i, and other older applications
 - IMS Connect, MQ (to CICS etc), and file-based formats are all supported

- Optimize existing SOA deployments by offloading the rote, repeatable, universal tasks of integration to a purpose-built platform

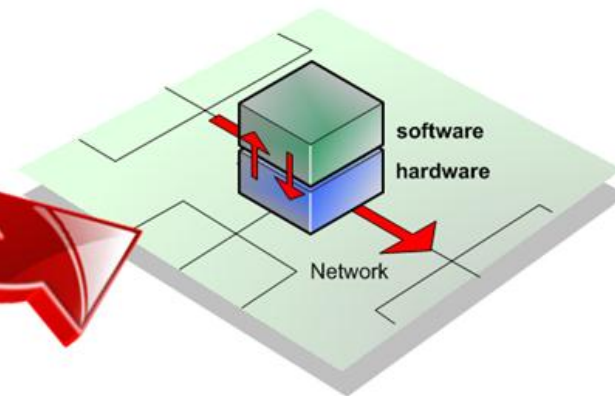
 - Save idiosyncratic adapting, transaction management, and business process workflows for software



The Hybrid Bus

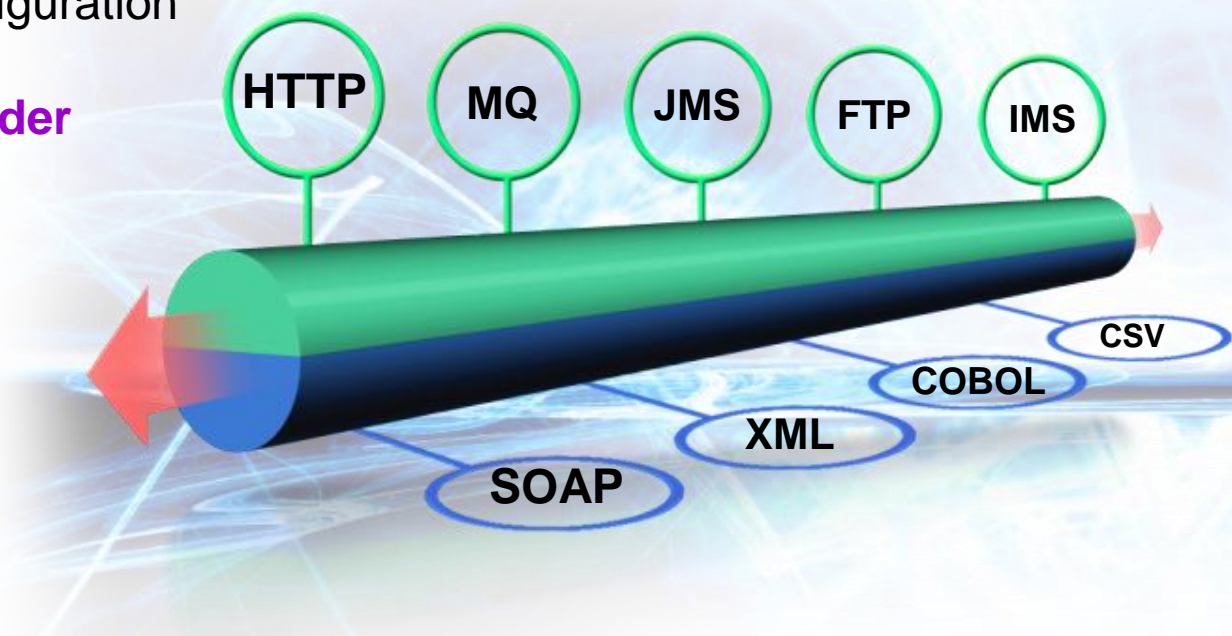


This design pattern drastically increases time before software solution needs to be scaled.



Access heterogeneous systems with transport and payload transformations

- Integrate disparate **transport protocols** with extreme ease
 - No dependencies between inbound “front-side” and outbound “back-side”
 - Examples: HTTP(s), WebSphere MQ, WebSphere JMS, Tibco EMS, SFTP, FTP(s), NFS, IMS, Database (DB2, Oracle, Sybase, SQL Server)
- Transform the **message format** with ultimate flexibility
 - Process XML and Non-XML formats in a single configuration
 - Leverage **WebSphere Transformation Extender** for data mapping
- Support synchronous, asynchronous, publish-subscribe and guaranteed-delivery message patterns



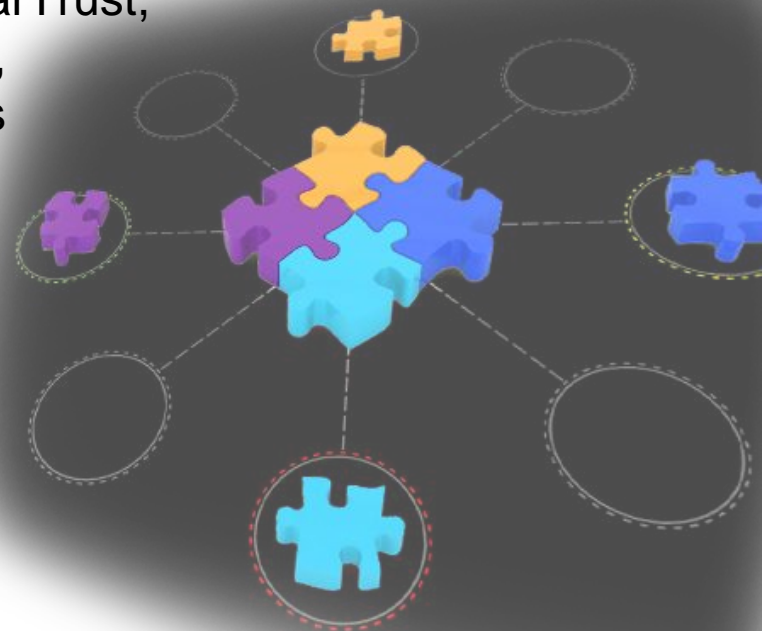
Shape your traffic with Service Level Management and Load Balancing

- Use **Service Level Management (SLM)** to protect your applications from over-utilization
 - Frequency based on concurrency OR based on messages per time period
 - Take action when exceeding a custom threshold:
 - Notify (or log)
 - Shape (or delay)
 - Throttle (or reject)
- Combine SLM with Routing to make intelligent failover decisions
 - Use alternate servers when a threshold is exceeded
- Advanced **Load Balancing** algorithms simplify your architecture
 - First Available
 - (Weighted) Round Robin
 - (Weighted) Least Connections
 - Hash



Interoperability remains central to the mission of DataPower Appliances

- Interoperability lab tests and supports the latest **Microsoft WCF** bindings
 - WCF 3.5 or above, Windows Server 2003, Visual Studio 2008
 - Examples: wsHttpBinding, ws2007HttpBinding, wsFederationHttpBinding, ws2007FederationBinding, basicHttpBinding
- Broad support for **Authentication and Authorization** stores
 - Examples: Microsoft ActiveDirectory, RSA ClearTrust, CA Netegrity SiteMinder, Sun Directory Server, Tivoli Access and Federated Identity Managers
- Advanced **WS-*** support for security
 - Examples: SAML 1.1, SAML 2.0, Kerberos, WS-SecureConversation
- Integrate with multiple **registries**
 - Examples: HP Systinet, IBM WSRR

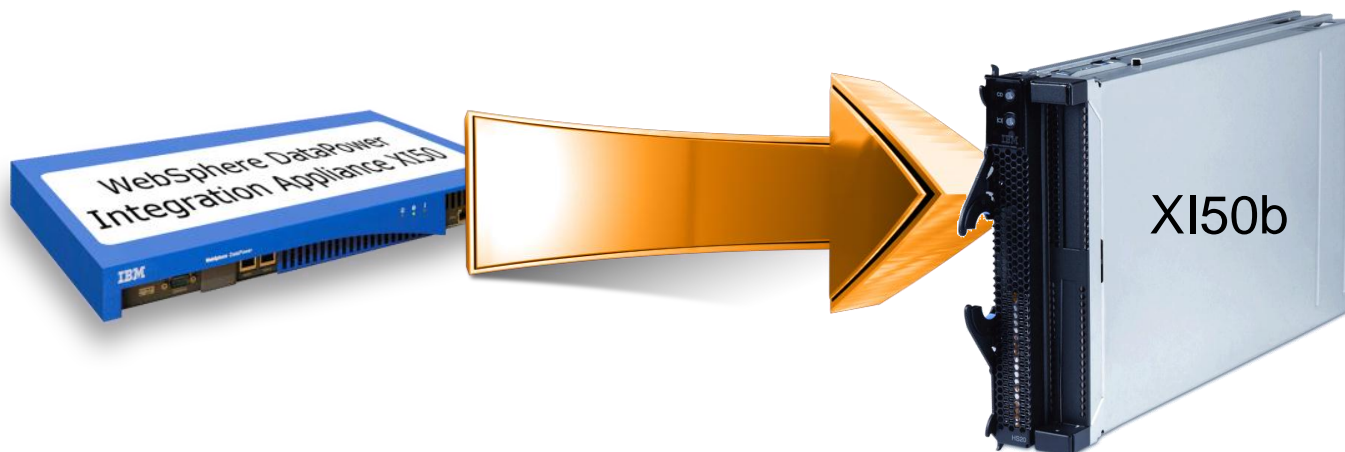


Consolidate your infrastructure with Application Optimization

- Use **Self-Balancing** technology to spread inbound traffic load across multiple DataPower appliances using a single target
 - Eliminates the need for additional physical Load Balancers
 - Efficiently distributes traffic with minimal overhead
- Use **Intelligent Load Distribution** to optimize outbound traffic across multiple destinations
 - Supports dynamic WebSphere cell interrogation
 - Automatically updates targets and weights
- Use **Session Affinity** to preserve target session state across multiple requests
 - Supports WebSphere and Non-WebSphere targets
- Application Optimization is a separately licensable feature available as a field-upgrade



XI50 appliances are also shipped in the blade form factor...

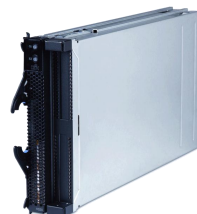


- Fully integrated with IBM Blade Center
 - Management integration with the Blade Center Advanced Management Module
 - Consistent with Blade's Smarter Planet initiative
- 10GB Ethernet support
- Provides the capabilities of today's XI50 1U appliance in a blade form factor
 - Fully functional ESB capabilities
 - Consistent with 1U DataPower configuration and operations management

...and there are special blades for System z as well.

The IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z)

DataPower Integration Appliance **XI50z**



- All of the features of the XI50 stand-alone appliance PLUS:
 - Unified hardware and firmware management through the **Hardware Management Console (HMC)**
 - Inherits serviceability, monitoring and reporting capabilities of zEnterprise
 - Access to internal System z networking



zBX
BladeCentre



zEnterprise 196

Private High Speed Network



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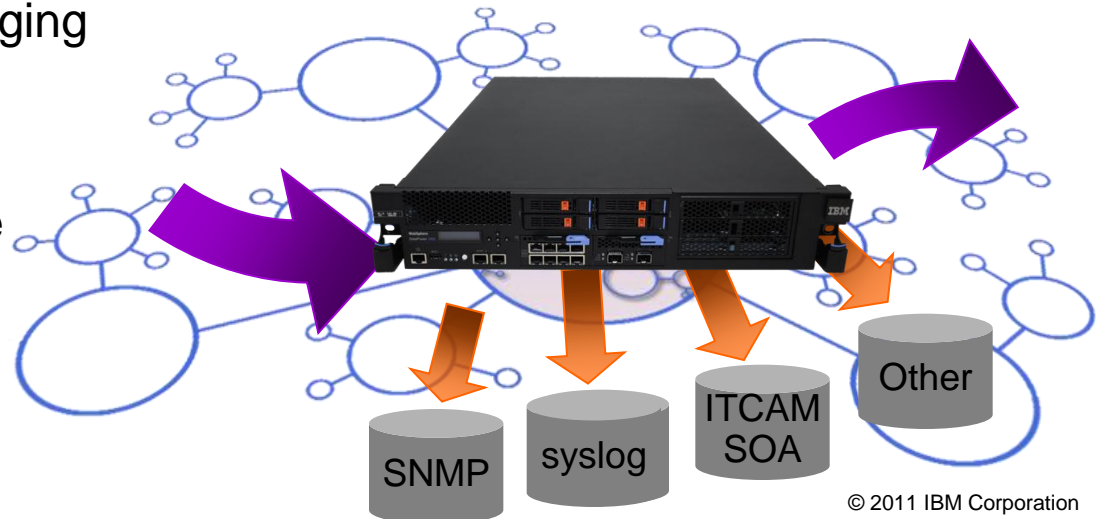
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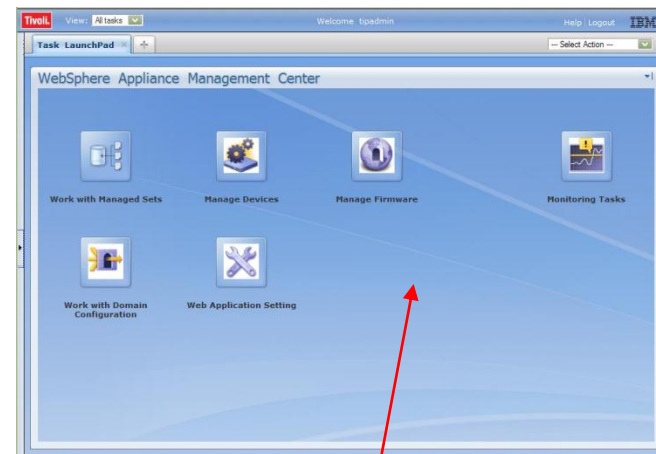
Use new or existing tools to monitor DataPower traffic

- Easily integrate DataPower with your **existing monitoring infrastructure**
 - Extensive health and welfare information via SNMP
 - Detailed transactional information via syslog
- Leverage advanced SOA monitoring tools for more holistic analysis
 - **IBM Tivoli Composite Application Manager (ITCAM) for SOA**
- Create advanced log and audit solutions that meet your application requirements
 - Synchronous or asynchronous logging
 - Guaranteed or best-effort logging
- Customize your monitoring with a flexible log subscription engine
 - Send to **multiple targets**
 - Send in **multiple formats**



Introducing the WebSphere Appliance Management Center (WAMC)

- Provide multi-box DataPower appliance management
 - Support managed sets of different appliance models & firmware
 - Exploits new support for managed domain tasks, configuration & firmware deployments
 - Manage deployment policies for DataPower appliances, individually or in managed sets
- Simplified installation
- DataPower currency
 - Support latest DP devices and agent platforms
- Enhanced monitoring
 - More DataPower KPIs accessible in one place than ever before
- Ease of Use
 - Enhanced Configuration UI
 - Navigation by user role
- Seamless integration into Tivoli Monitoring infrastructure
 - Plays well with enterprise-level Tivoli monitoring solutions like ITCAM



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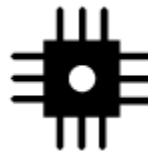
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simpler solutions for a smarter planet



How to learn more

- YouTube <http://www.youtube.com/watch?v=uWYBDviv5Ts&feature=channel>
- IBM.com <http://www-01.ibm.com/software/integration/datapower/>
- Redbooks:
 - Appliance architectural patterns
<http://www.redbooks.ibm.com/redbooks/pdfs/sg247620.pdf>
 - B2B Gateway appliance
<http://www.redbooks.ibm.com/redbooks/pdfs/sg247745.pdf>
 - The programmatic management interface
<http://www.redbooks.ibm.com/redpapers/pdfs/redp4446.pdf>
- Targeted demonstrations
 - IBM technical specialists can demonstrate any model of the appliance using use cases familiar to your business
 - Contact your WebSphere Sales Specialist for details

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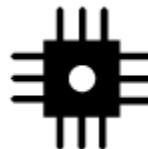
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simpler solutions for a smarter planet





THANK YOU!

Questions?