



Optimize your z/OS environment with Linux Utilities for IBM System z

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August 16, 2006



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Simplify your IT.

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Agenda

- Opportunities for infrastructure simplification
- z/OS and Linux working together
- **NEW** - Linux Utilities for IBM System z
- Call for Action



On Demand Business New opportunities? New requirements for IT?

What we hear from our customers



We want to move our software to an environment that can offer very high availability, reliability and security, while helping our clients to reduce their costs and increase their flexibility.

As IT requirements continue to grow, how do we meet the requirements for power, cooling and for floor space.

This is what keeps me awake at night, balancing increasing security requirements with the need for the business to be open.

Controlling costs is no longer just about hardware or even software . . . it's about the cost of management and complexity.

We will reduce the infrastructure maintenance cost to fund strategic initiatives such as applications that transform new business processes.



How do we ensure our systems can ramp up to meet increasing demands as we drive to generate profitable growth?



More infrastructure solutions for z/OS

Linux[®] Utilities for IBM System z[™] can provide more choices for z/OS[®]

Meet infrastructure demands



- **More infrastructure simplification**
- **More security**
- **More integrated workload and applications**
- **More skill vitality**
- **More ISV support**



with Linux based technology

The role of Linux on the Mainframe

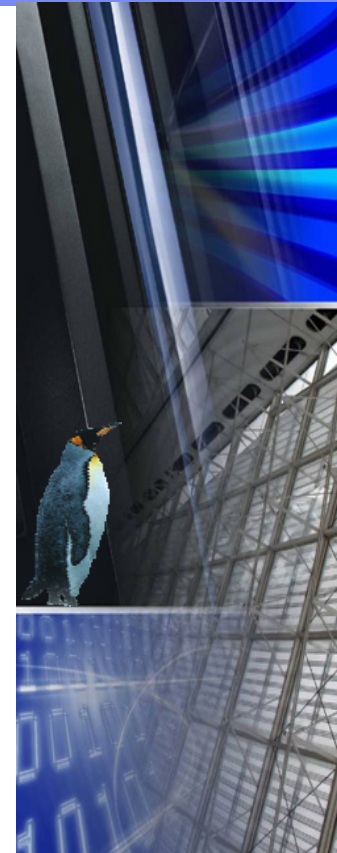
Offer z/OS customers additional opportunities to leverage their mainframe investments

- **Simplify the IT infrastructure**

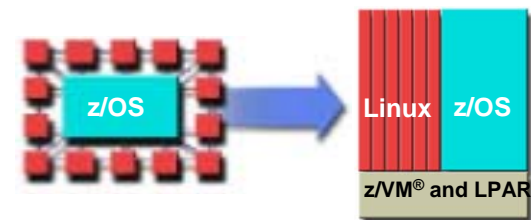
- ▶ Unify your IT infrastructure with System z virtualization technology and Linux open standards
- ▶ Integrate open and industry standard-based solutions with core data and business applications available with z/OS today

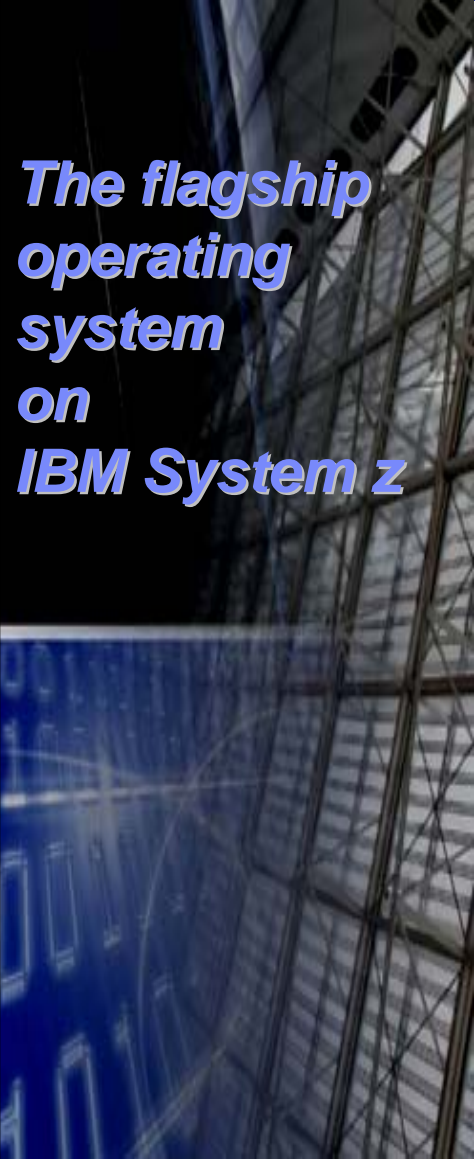
- **Extend secure and flexible on demand business environment**

- ▶ Offers freedom of choice in applications as well as commodity infrastructure solutions
- ▶ Large number of highly skilled programmers



Linux on System z can help to integrate and simplify distributed solutions to minimize cost and maximize manageability.





**The flagship
operating
system
on
IBM System z**

z/OS

- z/OS is designed to deliver the highest qualities of service
- z/OS is providing extreme scalability, security, and availability
- z/OS is helping to unify the infrastructure for integrated application development and deployment
- z/OS is extending leadership strengths across the infrastructure
- IBM System z is supported by a number of operating systems, and its most advanced features are powered by z/OS
 - ▶ Industry-leading security integrated in the platform
 - ▶ Sophisticated monitoring and management capabilities

IBM System z and z/OS – Design to Work Together

- **IBM System z is designed to run diverse workloads on multiple operating systems concurrently**
 - ▶ z/OS is the flagship operating system on System z
 - ▶ Linux offers infrastructure simplification and application sourcing
 - ▶ Linux helps to extend infrastructure simplification to solutions not available today on the mainframe
- **Linux Utility can leverage world-class z/OS capabilities and strengths**
 - ▶ **Linux Utilities can leverage z/OS data serving strengths**
 - New solution deployed in less time, accessing core data on DB2® on z/OS
 - Reduced networking complexity and improved security network “inside the box”
 - ▶ **Linux Utilities can leverage z/OS high availability strengths**
 - z/OS backup and restore processes
 - Disaster Recovery provided by GDPS®

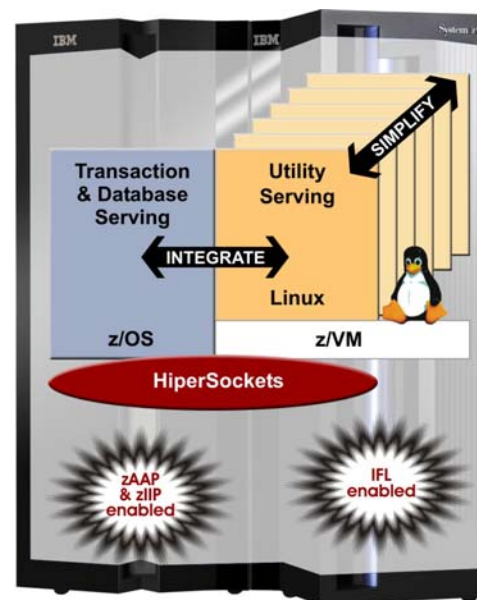
Together, z/OS and Linux on System z can provide an ideal combination of computing strength and open source agility for on demand business.

Linux Utilities for IBM System z

Leverage the potential Linux brings to the mainframe

- **More choices of tested* infrastructure utilities for z/OS**
- **Linux Utilities provide specific infrastructure functions; they are existing products**
- **Tightly integration of ‘commodity’ workloads – utilities – with z/OS workloads can provide an ideal combination of computing strength and open source nimbleness**
- **Technical documentation, covering details on installation and configuration, to help an easy and fast start for production usage**
- **Benefit from the control and management that System z offers**

z/OS Transaction and Database & Linux Utility serving



* While expected to execute on all System z hardware, the Linux Utilities have been tested by IBM only on selected System z hardware in a z/OS and Linux workload scenario. For the software versions, levels and/or releases, each of the Linux Utilities have unique requirements, all of which are documented in their individual write-ups. Testing is based on a controlled environment. No assurance is given that an individual user will achieve throughput or performance equivalent to that which may be set forth herein.

The Linux Utility Solutions

■ End-to-end security for z/OS transactions

- ▶ System z "network in a box" protection with the StoneGate™ firewall – Mark Boltz
- ▶ z/OS Web application business logic protection with webApp.secure™ - Jim Elliott
- ▶ End-to-end, centralized authentication and single sign on for z/OS transactions with IBM Tivoli® Access Manager WebSEAL – Tim Hahn

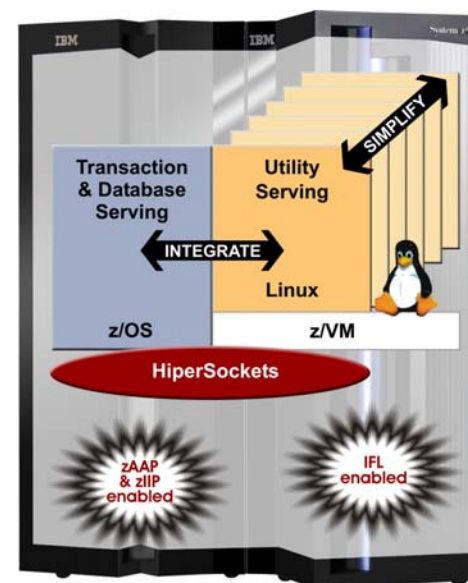
■ Systems Management addresses 'indirect' costs of computing

- ▶ Manage critical online business applications by proactively monitoring essential system resources on z/OS by running the essential components of OMEGAMON® z/OS Management Console on System z – Rich Szulewski

■ Preserve current system network architecture (SNA) assets

- ▶ IBM Communication Controller for Linux on System z allows you to run NCP software that has been critical, stable network component for many years – Al Christensen

z/OS Transaction and Database & Linux Utility serving





Linux Utilities Review Lunch & Learn StoneGate

Mark Boltz
August 16, 2006

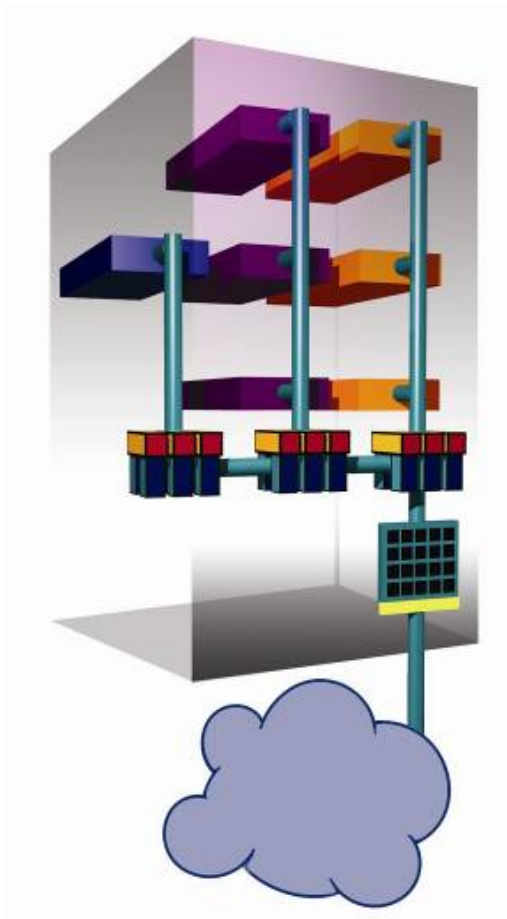


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StoneGate for IBM® System z Benefits

Secure, Optimized and Resilient Server Consolidation



- Supports wide range of mainframe architectures, designs
- Enhances security
- Improves regulatory compliance
- Reduces costs
- Reduces complexity
- Improves manageability
- Increases versatility
- Optional high availability for redundancy and resilient connectivity
- Includes integrated and hardened Linux® operating system

Stonesoft Contacts

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- **Solutions Architecture: Mark Boltz, CISSP (Mark.Boltz@stonesoft.com)**
- **Sales: info.americas@stonesoft.com; Federal@stonesoft.com**
- **Web: <http://www.stonesoft.com/contact/me/>**
- **For geographic contacts: <http://www.stonesoft.com/contact/>**

StoneGate Provides Firewall/VPN Security for the Mainframe

- In addition to the encryption capabilities and support of IPSec network security standards that are offered with z/OS, customers have the option of deploying a firewall solution on the mainframe as well -- StoneGate firewall by Stonesoft on Linux for System z. Customers can benefit by utilizing the StoneGate firewall as a means to meet the needs of their various network security policies and regulatory requirements
- StoneGate is the only commercially available certified firewall/VPN product for IBM System z. With the release of StoneGate for IBM System z, enterprises can now help protect their virtual servers and virtual networks with firewall and VPN technology to secure their data centers.
- StoneGate for IBM System z removes the need for external firewall servers between front and back end applications, saving costs in investment, labor and maintenance, enabling multiple simultaneous firewalls in a virtual network environment, and utilizing the unmatched scalability of a mainframe.
- StoneGate's clustering solution is also available for System z firewall implementations. It is now possible to load balance traffic between firewall instances in an active/active configuration enhancing high availability in your System z environment.
 - ▶ With StoneGate for System z, cluster nodes can even reside in separate mainframes and traffic can be load-balanced between them. This is useful when building hot disaster recovery sites.
- Good for companies that require always-on services and for whom disruptions in connectivity are not an option.

For more information: www.stonesoft.com/products/IBM_zSeries/

Useful StoneGate Materials

StoneGate for IBM System z

http://www.stonesoft.com/products/IBM_zSeries/

Server Consolidation Security White Paper

http://www.stonesoft.com/files/products/StoneGate/Server_Consolidation_091260404_letter.pdf

First National Bank of Omaha Case Study

<http://www.msinet.com/casestudies/infrastructuresimplification/fnbo/>

Informatika Case Study

<http://www.ibm.com/software/success/cssdb.nsf/CS/DNSD-67AJTS>

Redbook: Architecting High Availability e-Business on IBM eServer zSeries

<http://www.redbooks.ibm.com/abstracts/SG246850.html>

Redbook: IBM Enterprise Workload Manager v2.1

<http://www.redbooks.ibm.com/abstracts/SG246785.html>

Redbook: Linux on IBM eServer zSeries and S/390: Best Security Practices

<http://www.redbooks.ibm.com/abstracts/sg247023.html>



Linux Utilities Review Lunch & Learn webSecurity

Jim Elliott
16 August 2006



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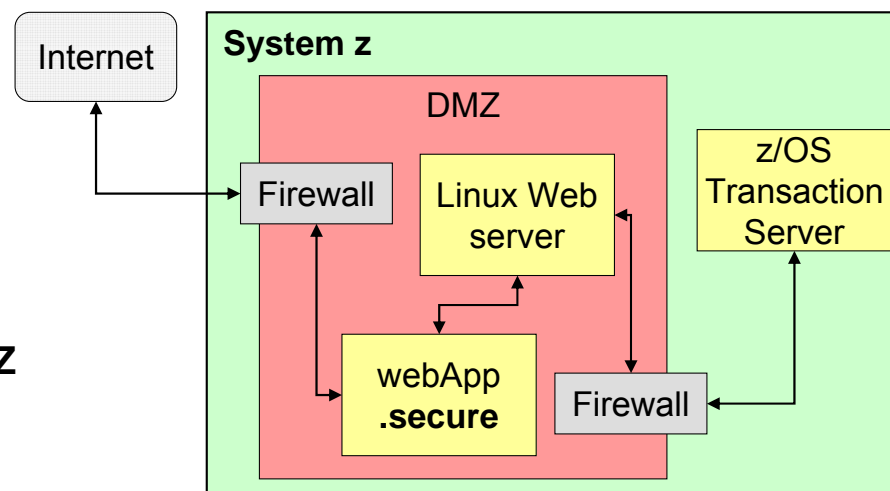
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Overview – webApp.secure™ for Linux on System z

- **Protects web application servers running under z/OS (and Linux on System z) from web application attacks which take advantage of the stateless nature of the Web protocol (HTTP) – it is essential protection beyond network firewalls**
- **Stops indiscriminate HTTP worm/virus attacks and discriminate targeted Internet attacks directed at application business logic**
- **Ensures that web sites, their applications and associated databases are accessed and used exactly as intended, with a positive security model enforcing web site guidelines, rules and policy**

webApp.secure™ Runs in the DMZ

- **Trusted gateway that protects all web application code, z/OS, WebSphere® or other middleware and their vulnerabilities and sets up in hours versus days or weeks for competition**
- **Checks web content in the DMZ with no risk to the application server running on z/OS**
- **Set & Forget controls that autonomically derive and update policy [as content exits the server]**
- **Adds a layer of regulatory compliance that exceeds government guidelines for GLBA, HIPAA and SOX**
- **Isolation of z/OS from Internet traffic and threats, using HiperSockets™ for fast communications that are physically secure**



Essential Protection Beyond Firewalls

webApp.secure™

- **Technologies like Intrusion Detection Services (IDS), IPSec and IP filtering – all available on z/OS and integrated with RACF – are designed to protect against application level attacks. webApp.secure on Linux provides an additional choice for application security**
- **Protects Web Application Business Logic – including Vulnerable User Code.** Automatically shields operating system and middleware vulnerabilities
- **“Set & Forget” control** operates invisibly, maps business logic at installation and updates Intended Use Guidelines™ (policy) in real time as content exits the Web server
- **Installs in two hours**, provides absolute Web site protection, eliminates administrative liability risk, keeps Web site in production, reduces patch and repair costs and speeds new functional code availability and implementation
- **Instant Regulatory Compliance** – adds Web application security that exceeds regulatory compliance guidelines for GLBA, HIPAA SOX.
- **Autonomic Technology** with patent-pending engine that uses a positive security model in the form of Intended Use Guidelines that automatically maps the application business logic at installation and autonomically updates server policy in real time
- **Electronic Scalability**, which is a function of processor speed and/or memory size; fits SMB and Fortune 1000 accounts alike

For more information: www.webscurity.com/pe.htm



Linux Utilities Review Lunch & Learn Tivoli Access Manager

Tim Hahn
16 August 2006



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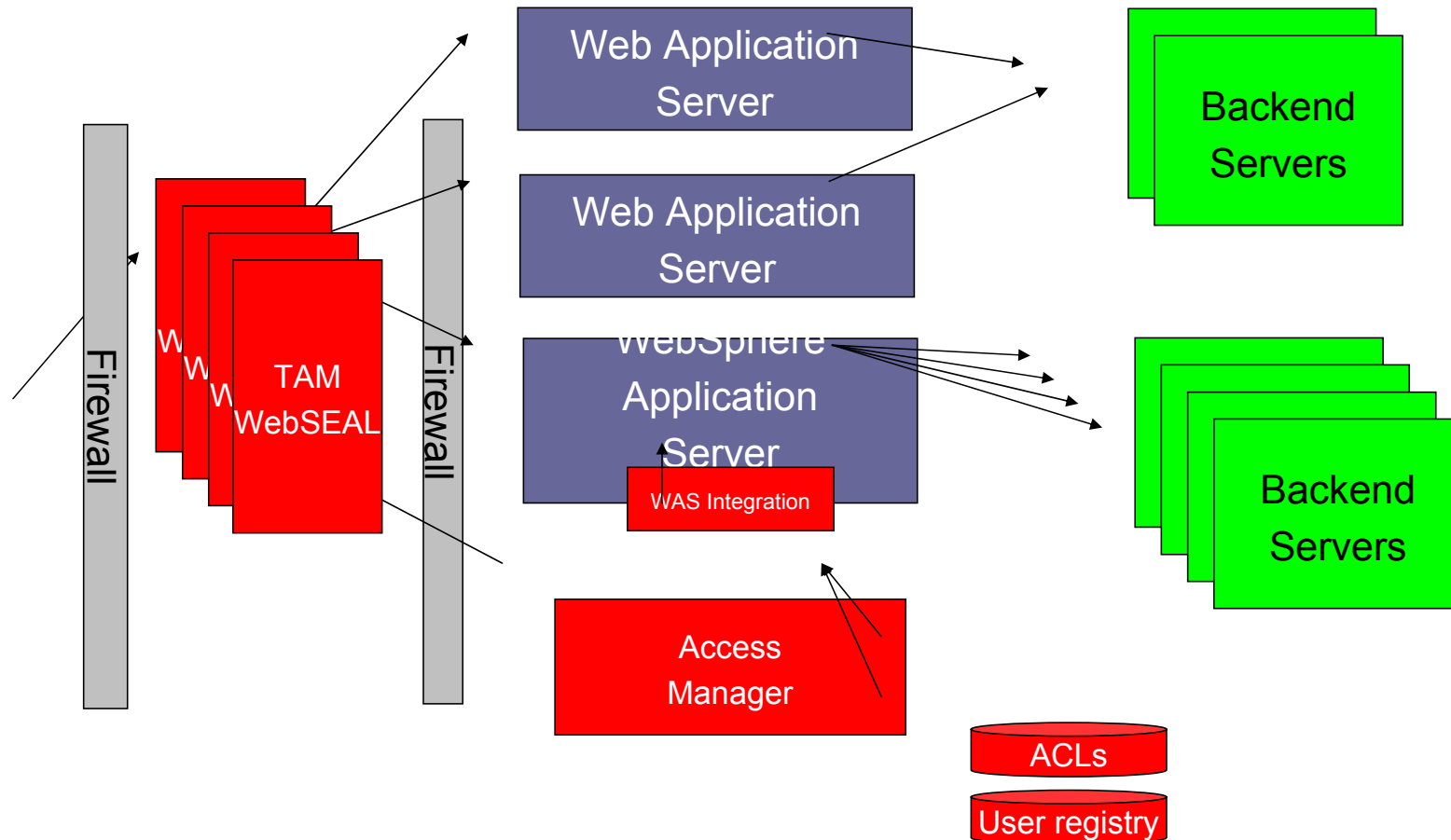
TAM Family

- **TAM for Business Integration**
 - ▶ Protects access to read/write to MQSeries queues
 - ▶ Protects messages sent over MQSeries queues
- **TAM for Operating Systems**
 - ▶ Enhances the access control checks performed by a Linux or AIX operating system
 - ▶ Stronger access controls and auditing for access to system resources
- **TAM for e-business**
 - ▶ Authenticates users accessing information via HTTP (web).
 - ▶ Protects access to information based on URL
 - ▶ Supports single sign on to multiple web-accessible applications
 - ▶ Protects access to EJB methods
- **TAM for Enterprise Single Sign On**
 - ▶ Relieves the user from answering userid/password prompts for every application
 - ▶ Can be used to set up random passwords that user does not even see or need to remember

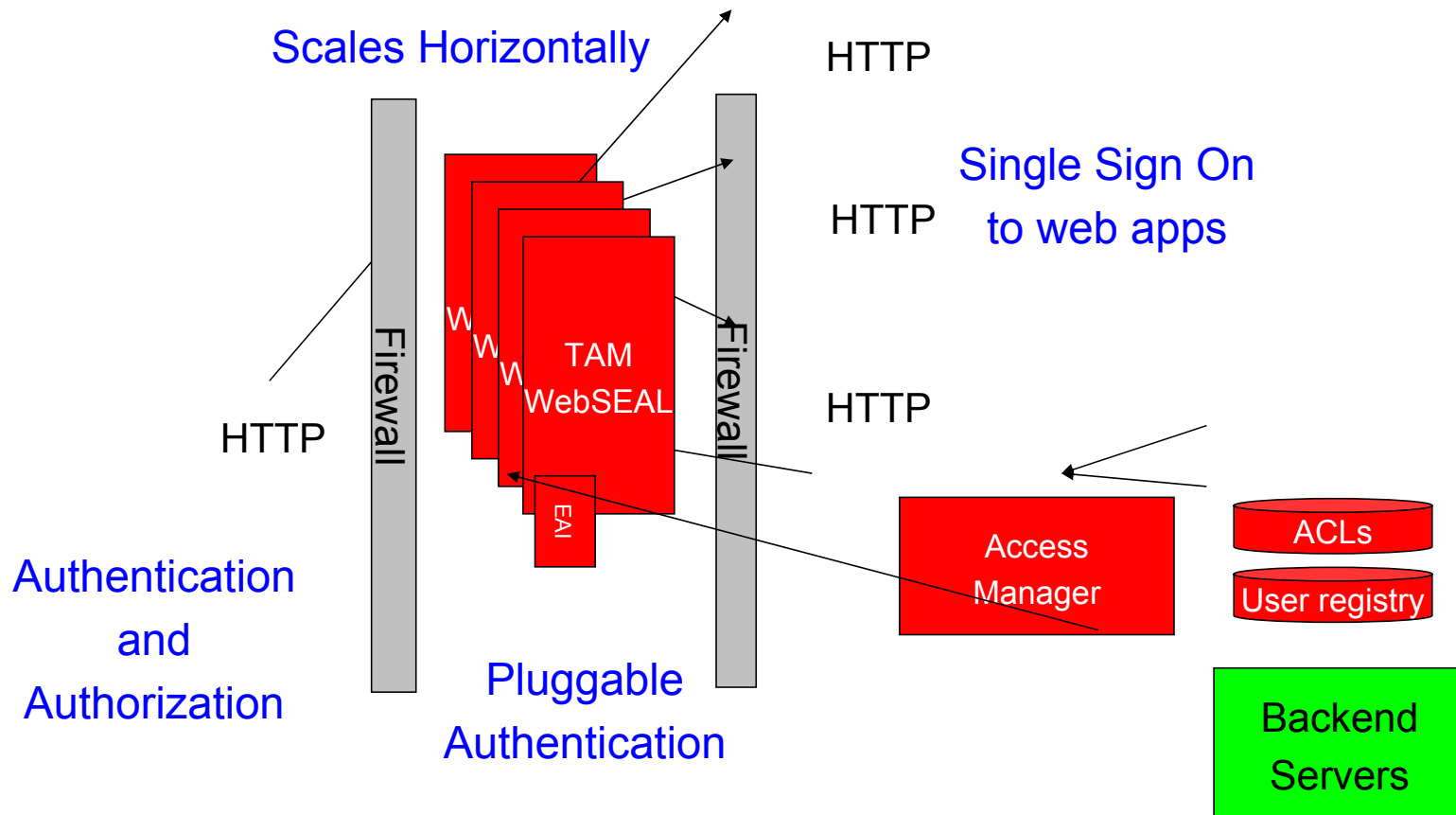
TAM for e-business

- **WebSEAL**
 - ▶ Reverse proxy server that supports authentication, access control based on URL, and single sign on to multiple web-based applications
- **WAS integration**
 - ▶ Credential transfer to WAS, credential transform to WAS credential, EJB method protection

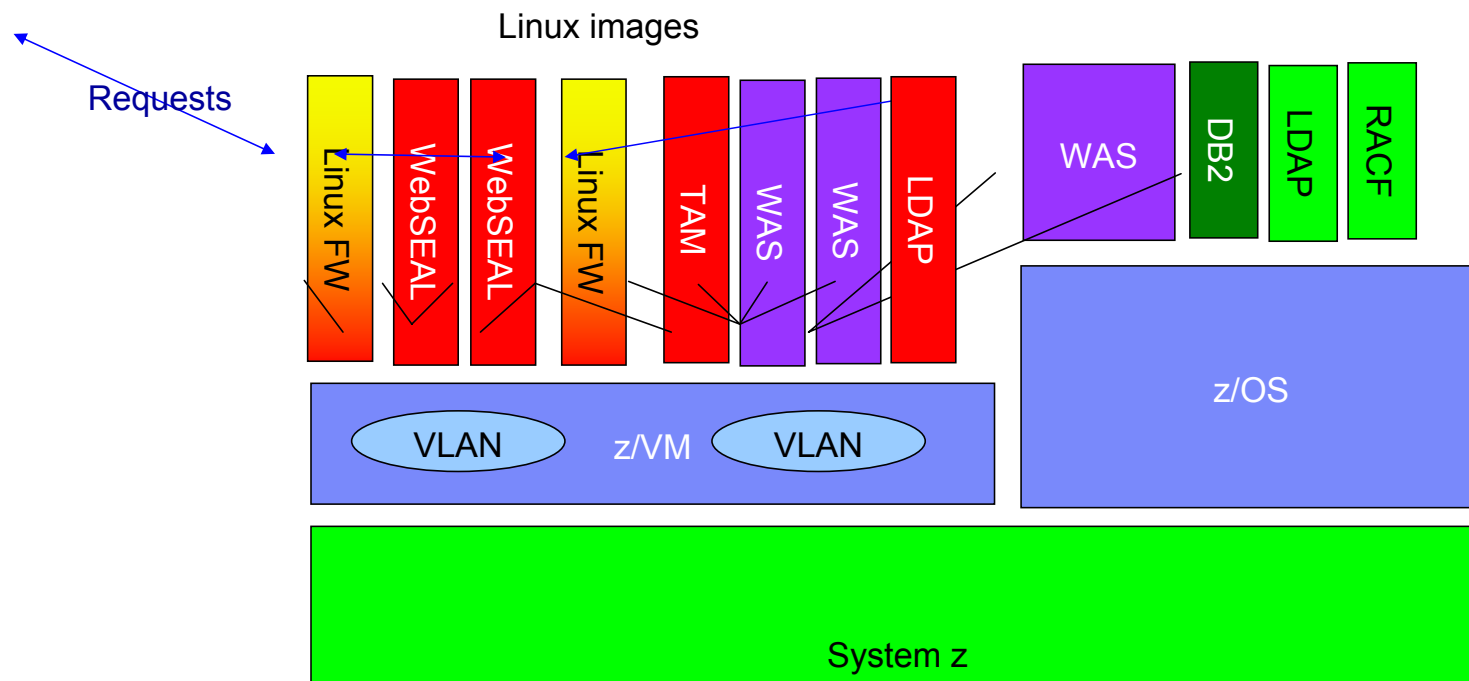
TAM for e-business



TAM for e-business WebSEAL



TAM as a Linux Utility



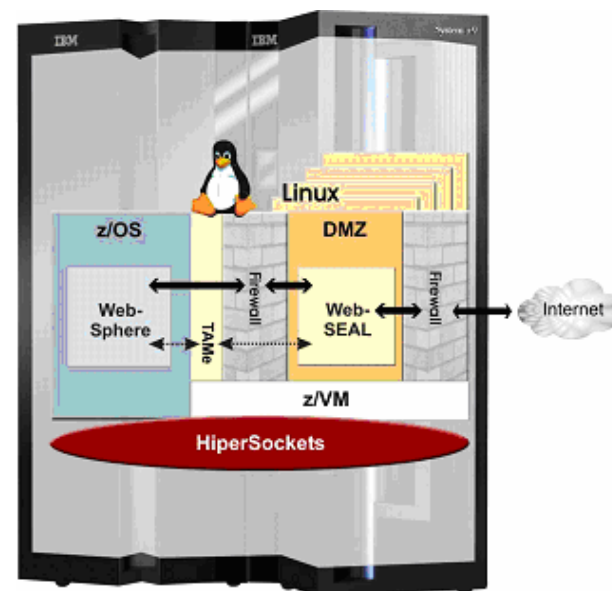
For More Information

- **Tivoli Identity Manager**
 - ▶ <http://www.ibm.com/software/tivoli/products/identity-mgr/>
- **Tivoli Access Manager**
 - ▶ <http://www.ibm.com/software/tivoli/products/access-mgr-e-bus/>
 - ▶ <http://www.ibm.com/software/tivoli/products/access-mgr-bus-integration/>
 - ▶ <http://www.ibm.com/software/tivoli/products/access-mgr-operating-sys/>
- **Tivoli Privacy Manager**
 - ▶ <http://www.ibm.com/software/tivoli/products/privacy-mgr-e-bus/>
- **Tivoli Federated Identity Manager**
 - ▶ <http://www.ibm.com/software/tivoli/products/federated-identity-mgr/>
- **Tivoli Security Compliance Manager**
 - ▶ <http://www.ibm.com/software/tivoli/products/security-compliance-mgr/>
- **IBM Tivoli Directory Server**
 - ▶ <http://www.ibm.com/software/tivoli/products/directory-server/>
- **IBM Tivoli Directory Integrator**
 - ▶ <http://www.ibm.com/software/tivoli/products/directory-integrator/>
- **Contact me**
 - ▶ <mailto:hahnt@us.ibm.com>

Powerful end-to-end single sign on solution

Tivoli Access Manager WebSEAL

- Managing the authentication and authorization (and auditing) of hundreds or thousands of users may be challenging. RACF in z/OS is designed to do this and can set security policies, support digital certificates, LDAP, MLS, and more. Products from Vanguard Integrity Professionals, Inc. add additional single sign-on support and usability improvements for RACF
- IBM Tivoli Access Manager WebSEAL is an additional choice for security manager for Web-based resources
- WebSEAL is a high performance, multithreaded Web server that applies fine-grained security policy to the protected Web object space
- WebSEAL can provide single sign-on solutions for z/OS transactions and incorporate back-end Web application server resources on z/OS into its security policy
- WebSEAL helps z/OS remain isolated from Internet traffic and threats





Linux Utilities Review Lunch & Learn Tivoli Enterprise Portal Server

Rich Szulewski
August 16, 2006



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Effectively manage performance

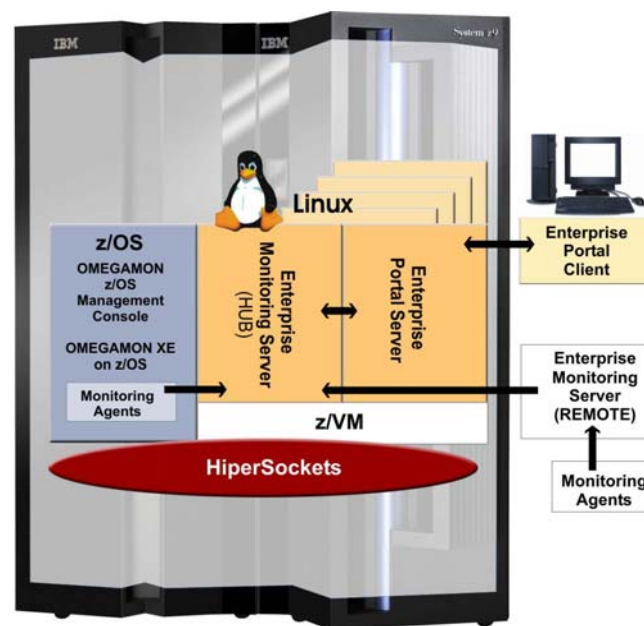
OMEGAMON z/OS Management Console

- Components of the OMEGAMON z/OS Management Console and OMEGAMON XE for z/OS can be deployed side by side on z/OS and Linux for System z. They share several Tivoli software components:
 - ▶ Tivoli Enterprise Monitoring Server
 - ▶ Tivoli Enterprise Portal Server
 - ▶ Tivoli Enterprise Portal client

- With Linux on the mainframe, the Tivoli Enterprise Portal Server can be hosted on the mainframe rather than off the platform

- The full set of resiliency functions offered by the Tivoli Enterprise Management Server are available when the server is hosted on Linux for System z

- Components of the z/OS OMEGAMON Management Console are also shared with IBM Tivoli Monitoring V6.1



Note: IBM Tivoli Enterprise Monitoring Server (HUB/REMOTE) can be deployed on z/OS or Linux; the full set of resiliency functions for the Monitoring Server are available when running on Linux.



Linux Utilities Review Lunch & Learn Communications Controller

Alfred Christensen
16 August 2006

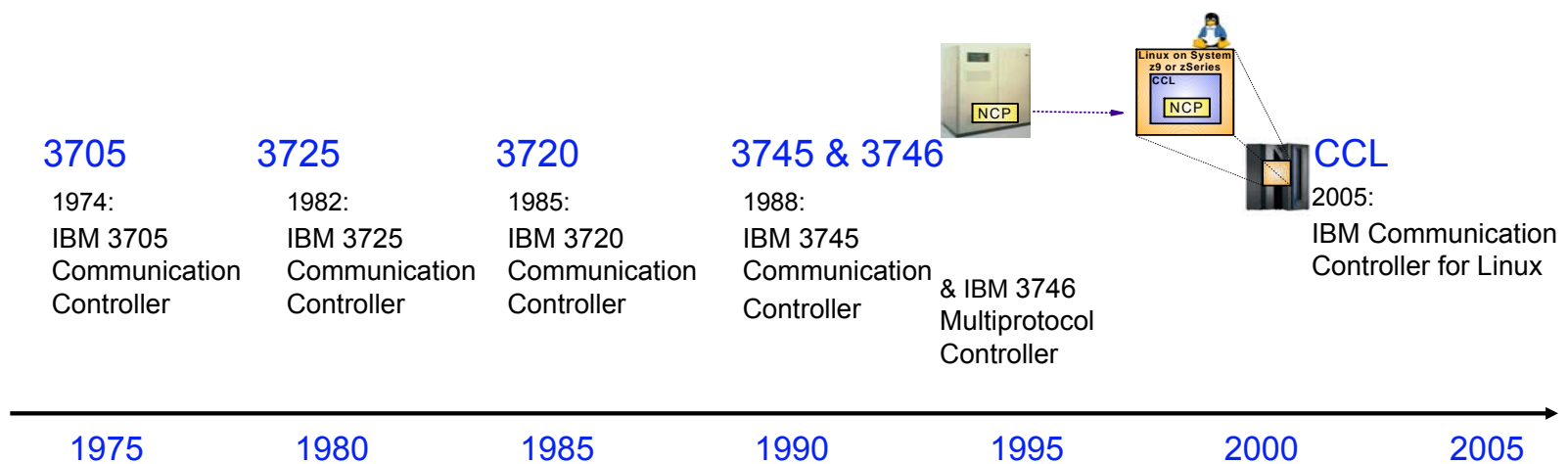


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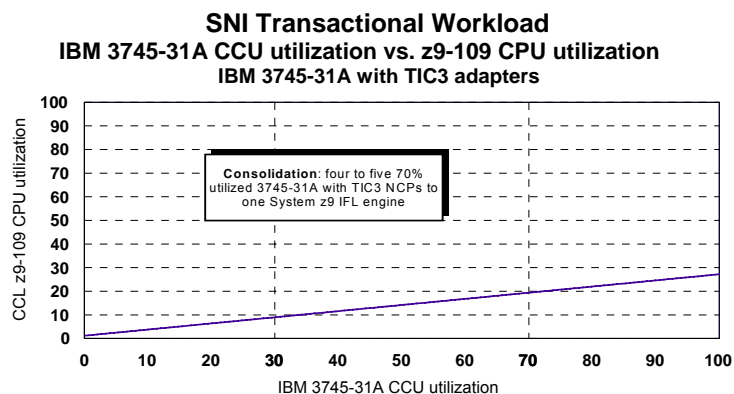
Introducing IBM Communication Controller for Linux (CCL)

- **IBM Communication Controller for Linux on System z**
 - ▶ **The next generation of IBM Communication Controllers**
 - ▶ **A mainframe software solution providing a “virtualized” Communication Controller which runs in Linux on System z**
 - ▶ **Migration alternative for IBM 3745 (marketing discontinued 2002)**
 - ▶ **Runs existing NCP and NPSI software**



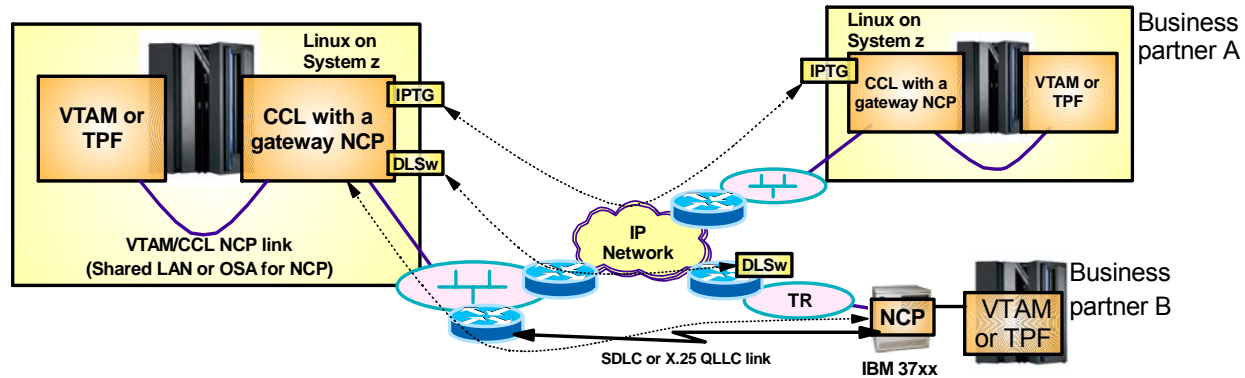
What CCL is and what it is not

- Emulates IBM 3745, but not a one-to-one replacement
 - ▶ System z hardware connection options not as comprehensive as IBM 3745 hardware connections
 - Some connections not supported (e.g. EP BSC)
 - Others need additional step (e.g. serial lines terminate at router, x.25 through XOT)
 - ▶ However, CCL in many ways provide the opportunity for more value than IBM 3745
 - Simplification
 - Performance
 - Availability
 - Management
 - Security

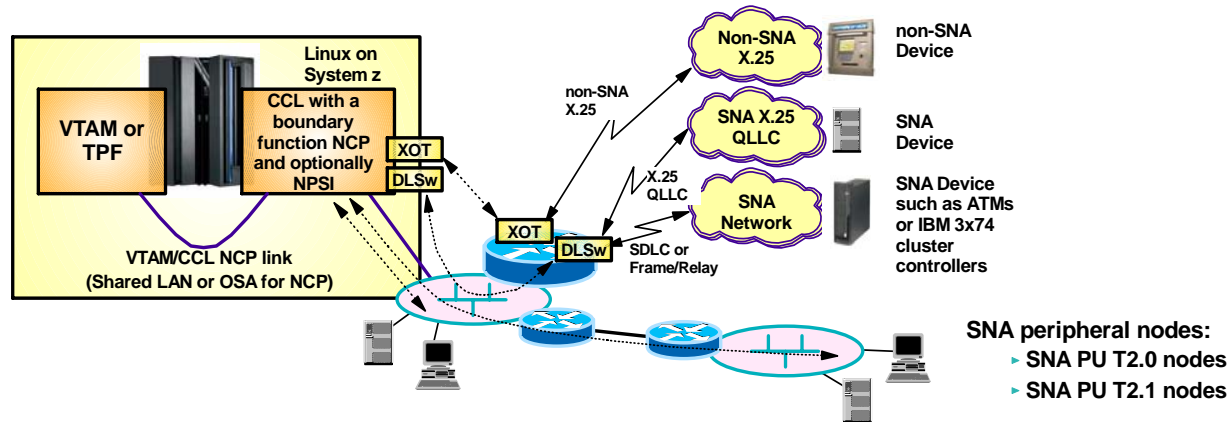


IBM Communication Controller Utility Samples for SNA Network Infrastructure Modernization

Business partner SNI Connectivity



SNA Boundary Function Connectivity



Move critical function from outdated networking hardware onto strategic System z servers

Communication Controller for Linux on System z

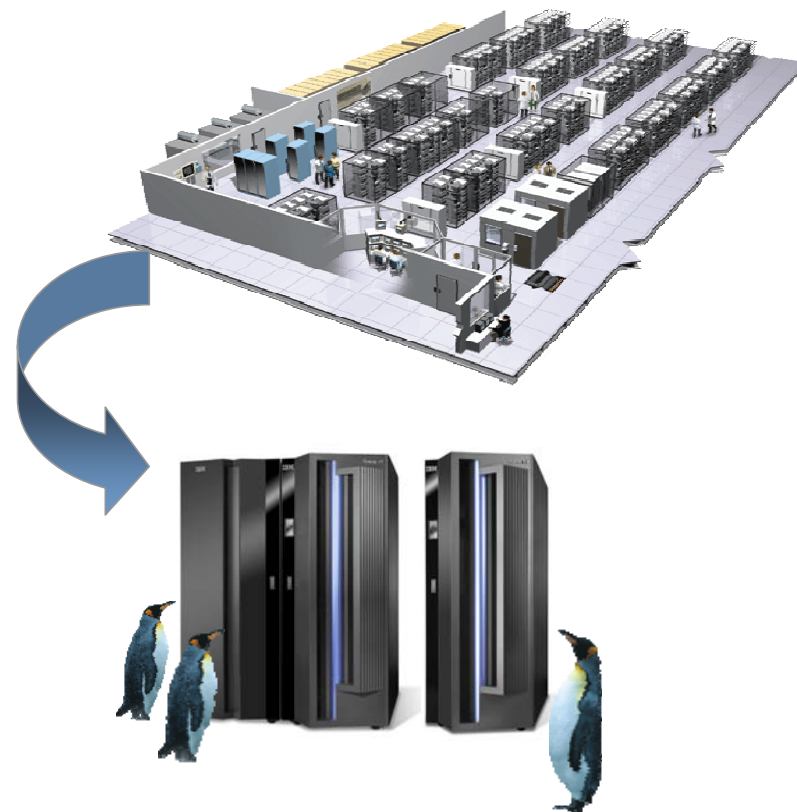
- The IBM Communication Controller for Linux on System z (CCL) can help customers preserve their investment in the critical mainframe applications that they rely on while migrating to a newer networking infrastructure.
- The CCL is a software solution that emulates IBM 3745 Communication Controller hardware
- Runs current NCP and NPSI software
- Simplifies network topology while improving performance
- Supports key functions, availability features, and management tools used in the 3745 environment today and allows customers to take advantage of the many additional benefits provided by the Linux System z server
- Removes dependencies on, and risks associated with, outdated networking hardware such as 37xx, Token Ring, ESCON®, 2216, etc.
- Reduces overall network complexity by converging IP and SNA traffic onto a single common IP-based infrastructure and enables the network infrastructure for seamless integration of SNA applications into SOA

Take back control of your IT infrastructure

*Infrastructure simplification starts with a Data Center in a box
... not a server farm*

- **Central point of management**
- **Increased resource utilization**
- **Potentially lower cost of operations**
 - ▶ Less servers
 - ▶ Fewer software licenses
 - ▶ Fewer resources to manage
 - ▶ Less energy, cooling and space
- **Fewer intrusion Points**
 - ▶ Tighter security
- **Fewer points of Failure**
 - ▶ Greater availability

ibm.com/zseries/linux



Linux Utilities for System z complement and strengthen the role of the mainframe

High utilization, platform robustness, advanced workload management, and leveraging the combined strengths of z/OS and Linux can help to strengthen and control the IT infrastructure

Benefit from:

- ▶ Mainframe qualities of service
- ▶ Secure and fast internal communication
- ▶ System z virtualization for simplification and control
- ▶ Reduced complexity and simplified maintenance tasks
- ▶ Proximity to applications and data on the same System z
- ▶ Benefit from established processes and disciplines in z/OS
- ▶ Leverage flexibility of integrated z/OS and Linux infrastructure solutions

ibm.com/zseries/os/linux/utilities

Linux Utilities for IBM System z Information Resources – go live 8/16

External Web pages

- ▶ Overview: <http://www.ibm.com/zseries/os/linux/utilities>
 - Introduction, White paper and FAQ
- ▶ Solutions: <http://www.ibm.com/zseries/os/linux/utilities/solutions>
 - Links to solution Web pages
 - IBM technical documentation on installation and customization
- ▶ Get started: <http://www.ibm.com/zseries/os/linux/utilities/getstarted>
 - Services, White papers, Redbooks, etc.

Sales kit

- ▶ http://w3.ibm.com/sales/systems/portal/_s.155/254?navID=f220s240&geoID=All&prodID=System%20z&docID=zlinuxutilitiessk.skit&docType=SalesKit&skCat=DocumentType
- ▶ Or, search for "zlinuxutilitiessk.skit" from the IBM Systems Sales Web site at: <http://w3.ibm.com/sales/systems/>
- ▶ Sales kit will be made available on Business Partner Web page as well

