

CA Technologies

***Manage, Monitor and
Protect Linux on System z:
A Holistic Approach for
Lowering Cost and Risk***



Secure. Agile. Optimized.

*CA Management for
Linux on System z*

Summer Spaulding
Sr Principal Engineering Services Architect
CA Technologies



- Why Linux on System z?
- CA Management for Linux on System z
 - Optimizing z/VM virtual environment
 - Managing performance and capacity planning
 - Protecting data, backup and recovery
- CA Linux on System z Vision and Strategy
 - Automated provisioning for hybrid cloud environment
- Q&A

why Linux on System z?

- ❑ Linux on System z is energy efficient technology
 - ❑ Reduce energy consumption and save floor space
 - ❑ Increase utilization and operations efficiency
 - ❑ Reduce staffing resources required
 - ❑ STOP Server Sprawl
- ❑ Economics of IFLs and z/VM[®] help drive down cost of IT
 - ❑ Perpetual license, separate from MIPS calculation
 - ❑ Consolidate from distributed environments to Linux on System z to reduce server sprawl and simplify operations



Linux on System z

trends – showing significant growth!

Linux on System z



- 34% of IBM System z customers run Linux on System z (*includes 63 of top 100*)
- IBM shipped approximately 2,000 Integrated Facility for Linux (IFL) specialty engines in 2010
- Shipment of IFL's increased 76% between 2Q 2010 and 2Q 2011
- 19% of IBM System z MIPS are deployed to support Linux as of end of 2Q
- zEnterprise 196 (z196) IFL delivers up to 60% more capacity than a System z10 IFL at 27% lower unit cost

Source: IBM, October 2011

national insurance company saves money with Linux on System z

- Business Challenge
 - Pressure from IT growth forced IT investment priorities
 - What started as consolidation project, created unexpected energy savings bonus
- Solution
 - Used Linux on System z and z/VM virtualization to significantly consolidate servers
- Benefits
 - Saved \$15 million dollars over 3 years
 - Software costs went down from \$3M to \$500K
 - Lower middleware costs (DB2, WebSphere)
 - Production: 36 IFLs / 216 Linux servers / 974 apps
 - Development: 21 IFLs / 451 Linux servers / 2,072 apps
 - Lower power and floor space by 80% over alternatives
 - Additional infrastructure savings related to networks, cables, racks, etc.
 - 50% reduction in monthly charges for Web infrastructure
 - Dramatically improved server provisioning speed
 - Able to add workloads without additional FTEs



- Saved \$15M over three years
- Lowered power and floor space by 80%
- 36 IFLs for production environment
- 21 IFLs for development environment
- 50% reduction in Web infrastructure charges
- Dramatically improved server provisioning speed

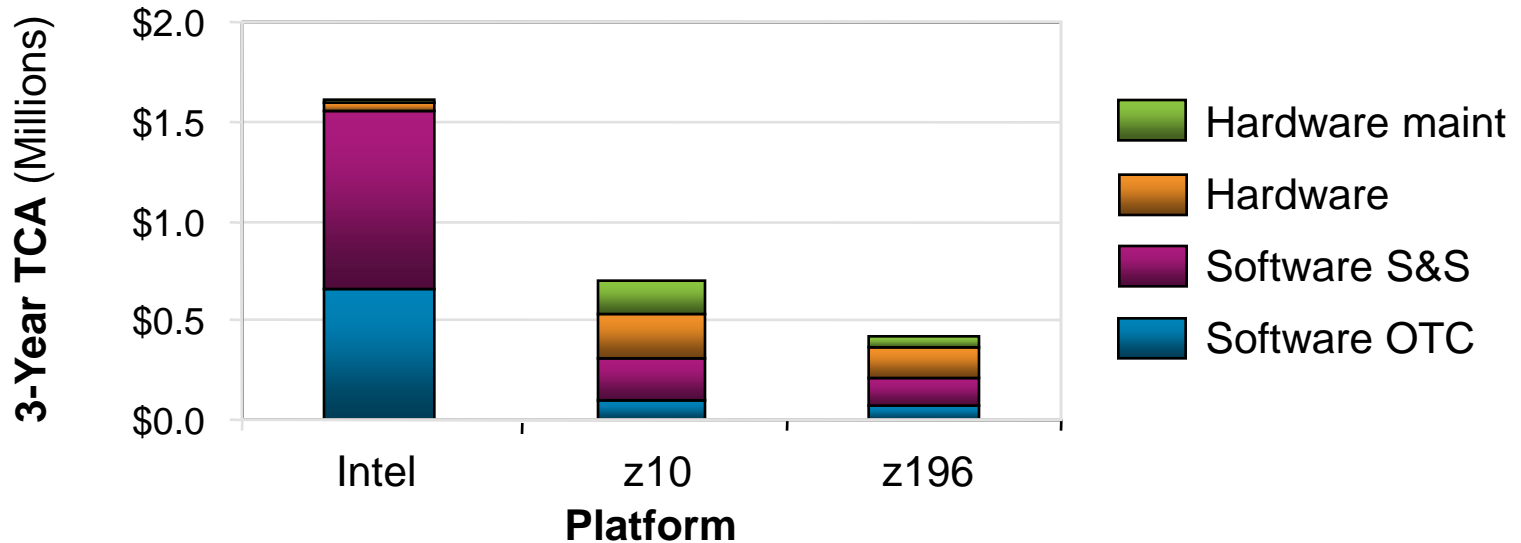
Linux on System z

most efficient platform for large scale consolidation

- Lower acquisition costs of hardware and software vs. distributed servers*
- Less than **\$1.00/day** per virtual server (TCA)*
- Reduce floor space by up to **90%** compared to distributed servers*
- Reduce energy consumption by up to **80%** compared to distributed servers*

Example: Consolidate 40 Oracle server cores to 2 Linux engines on

Consolidation on z



* Source: IBM (Distributed server comparison is based on IBM cost modeling of Linux on zEnterprise vs. alternative distributed servers. Given there are multiple factors in this analysis such as utilization rates, application type and local pricing, etc.; savings may vary by user.

what workloads are being moved to Linux on System z?

- Web Servers – *Apache, WebSphere IHS*
- Web Application Servers – *WebSphere WAS*
- Development – *coding, testing, QA*
- Databases – *Oracle, MySQL, DB2 for z/OS*
- Applications – *SAP, Cognos, Lotus Notes Domino*
- Linux on System z application characteristics:
 - Web applications that access z/OS database
 - Have high disaster recovery requirements
 - I/O-intensive applications
 - Have requirements for real-time server provisioning that may peak at different times



CA Solutions for Linux on System z strategy

Secure

Agile

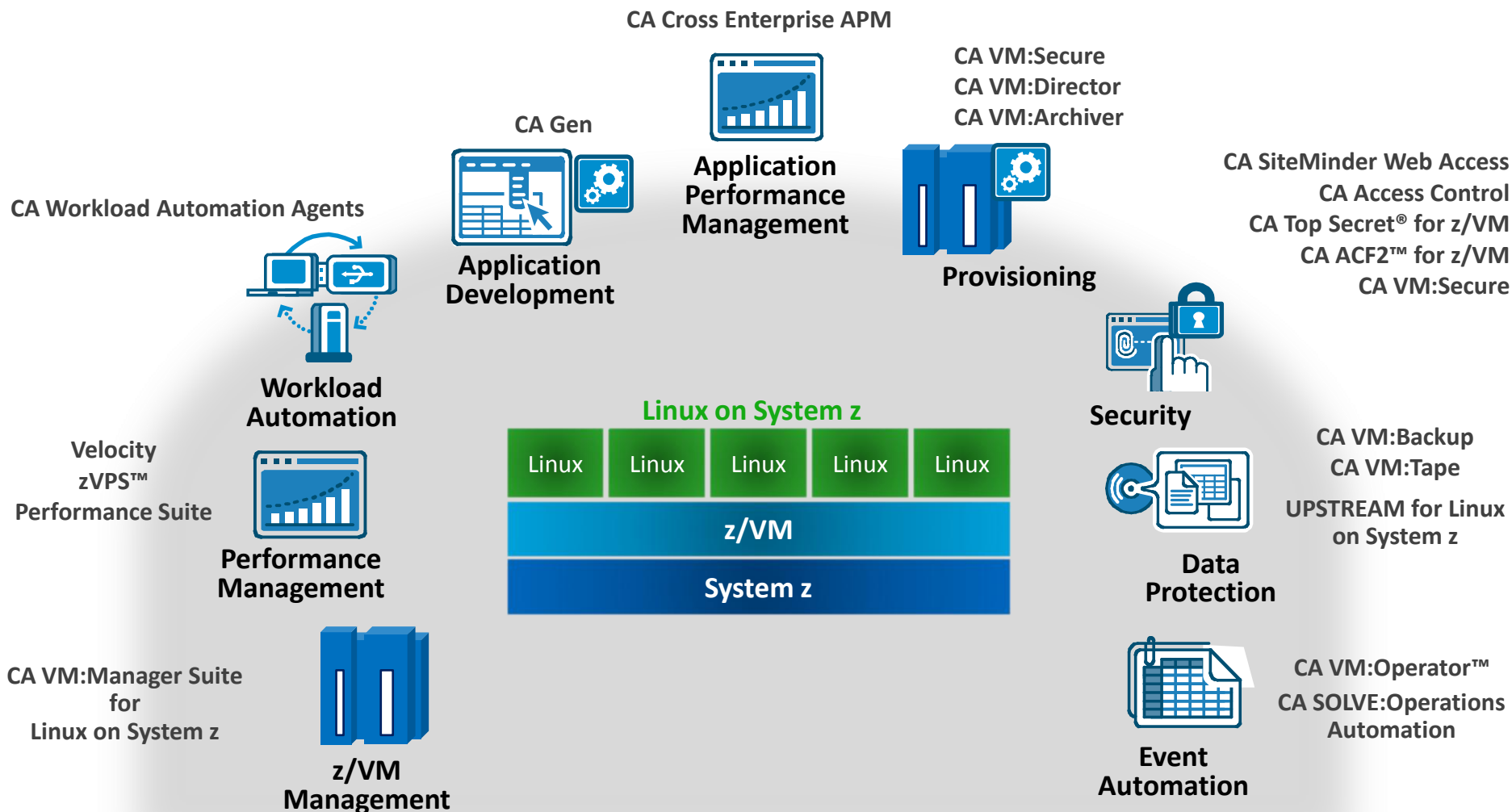
Optimized



- Simplify the management and security of Linux on System z with a comprehensive and integrated management suite
- Make Linux on System z a cost-effective choice for customers
- Agility delivered - allow clients to quickly deliver capacity on demand with Linux on System z

CA solutions for Linux on System z

comprehensive, best in class portfolio



managing and securing z/VM virtual environment

what is z/VM?

z/VM

- Robust **virtual machine** operating system that exploits virtualization technology and runs on IBM System z environment
- Supports large numbers (thousands) of Linux virtual machines

Why is z/VM important to Linux on System z?

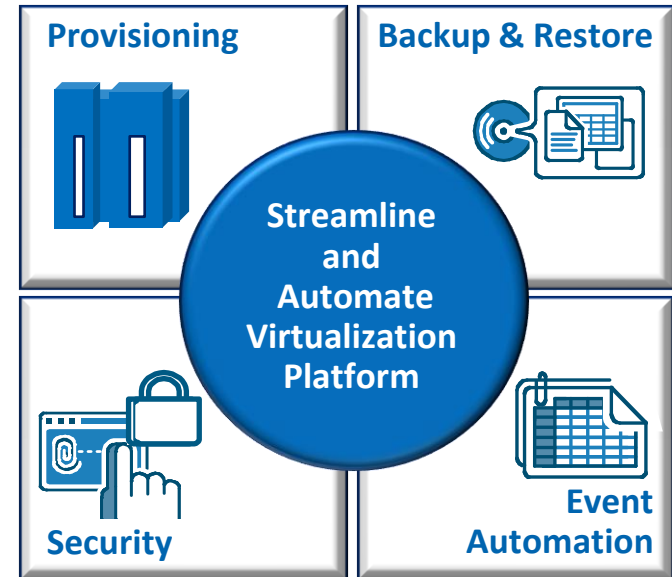
- z/VM Hypervisor extends value of mainframe technology by integrating applications and data, while providing exceptional levels of availability, security and operational ease
- Resources can be shared among multiple Linux images running on same VM system

Hypervisor – platform virtualization software that allows multiple operating systems to run on a host computer concurrently

automate z/VM management

z/VM Challenges

- Growing Linux workload capacity
- Managing and securing z/VM and Linux environments
- Reducing time and cost of manual tasks
- Controlled, safe resource sharing
- z/VM performance monitoring
- Device sharing, media protection



How CA Solutions Help You Address these Challenges

- Reduce human intervention and errors
- Remove complexity and lower costs for both z/VM and mainframe Linux environments by automating routine, labor-intensive tasks
- Scale to handle large Linux deployments with thousands of virtual Linux guests

CA VM:Manager™ Suite for Linux on System z

new releases of CA z/VM products simplify environment

Security

CA Top Secret® for z/VM
CA ACF2™ for z/VM
CA VM:Secure

Disk Storage Assets

CA VM:Account™
CA VM:Director™

Storage Backup/Recovery

CA VM:Backup™ (HiDRO)
CA VM:Archiver

Resource Chargeback

CA VM:Account™

Performance Tuning

CA Explore® Performance
Management for z/VM

CA VM:Operator™

Operations Management

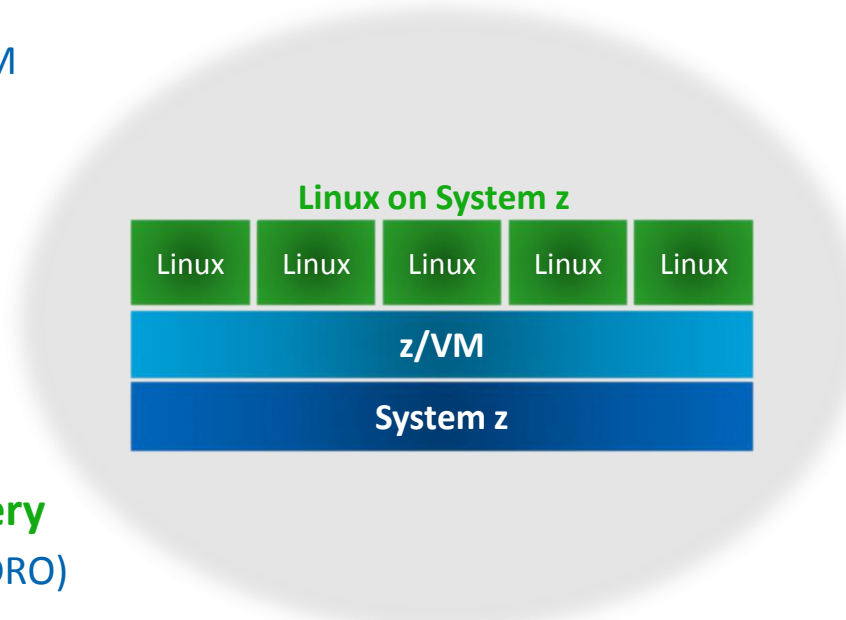
CA VM:Operator™
CA VM:Schedule™
CA VM:Spool™
CA VM:Sort™
CA VM:Batch™

Provisioning

CA VM:Director™
CA VM:Secure
CA VM:Archiver™

Tape Management

CA VM:Tape™
CA Dynam/T for z/VM



optimizing Linux on System z performance

Linux on System z

taking it to the next level

- How can we determine which workloads are the right fit for Linux on System z?
- How can we measure capacity requirements for new workloads we plan to consolidate to Linux on System z?
- Are my existing Linux on System z applications performing and meeting service level agreements?
- Do we have capacity to handle growth of these applications?
- How can we track Linux on System z resources consumed and charge costs back to our businesses or agencies?

make what's great about
Linux on System z even greater!



Velocity zVPS™ Performance Suite

optimize z/VM and Linux on System performance



Best in class
performance management
for Linux on System z

Combine
multi-platform system
management expertise
from **CA Technologies**

...with the performance
measurement expertise
from **Velocity Software**

Performance Benchmarking

- Identify most cost effective platform to run our workloads.
- Analyze “best fit” with accurate and detailed data across platforms.

Alert Notification and Performance Analysis

- Optimize operations to meet our SLA's.
- Immediately detect and report performance and capacity issues.

Capacity Planning

- Prevent costly hardware upgrades and data center outages.
- Project capacity requirements of future workloads with comprehensive trend data.

Chargeback and Accounting

- Transition IT from a cost center to a profit center.
- Chargeback Linux on System z resource usage to applicable business or agency with detailed and accurate usage data.

zVPS™ Performance Suite

solution components

Velocity zMON	Real-time graphical display of up-to-the-minute performance information
Velocity zMAP	Historical performance reporting provides in-depth post-analysis and capacity planning
Velocity zTCP	Network performance monitor for distributed servers, Linux networks and z/VM
Velocity zPRO Portal	Web-based interface for z/VM and Linux on System z performance management
Velocity zWRITE	Data collection facility that reduces monitor data without losing information relevant to proper performance analysis
Velocity zVWS	High-speed web server for optimum z/VM performance and reduced CPU overhead

zVPS Performance Suite

data accuracy and completeness

Velocity zVPS Provides More Complete Data Collection

- 100% data capture ratio
- Gathers data from each Linux on System z guest (in addition to z/VM)
- Also gathers data for network and distributed servers
- Concurrently across 100s or 1000s of servers

Total Data Accuracy

Identify, prorate and correct inaccurate data

100% data capture ratio

Agents Must Provide Correct Data

- Is your data correct? Or wrong by order of magnitude?
- Prior to SLES10/RHEL5, all “Virtual” agents provided wrong data

Velocity zVPS Performance Suite

lower overhead monitoring

zVPS provides lower overhead monitoring

- Fewer servers needed, which means lower costs
- Can be run all the time for trend analysis and problem prevention

Understand total operational cost of monitoring agents

- Understand what overhead your monitoring agent uses
 - 2%? 5%? 95%? of a processor per Linux server?
- Does this matter on distributed servers where agents were created?
- Does turning off performance monitoring solve the performance problem?
- Do you only turn on your agent when you have a problem?

Velocity zVPS uses
only **.03%**
per Linux server

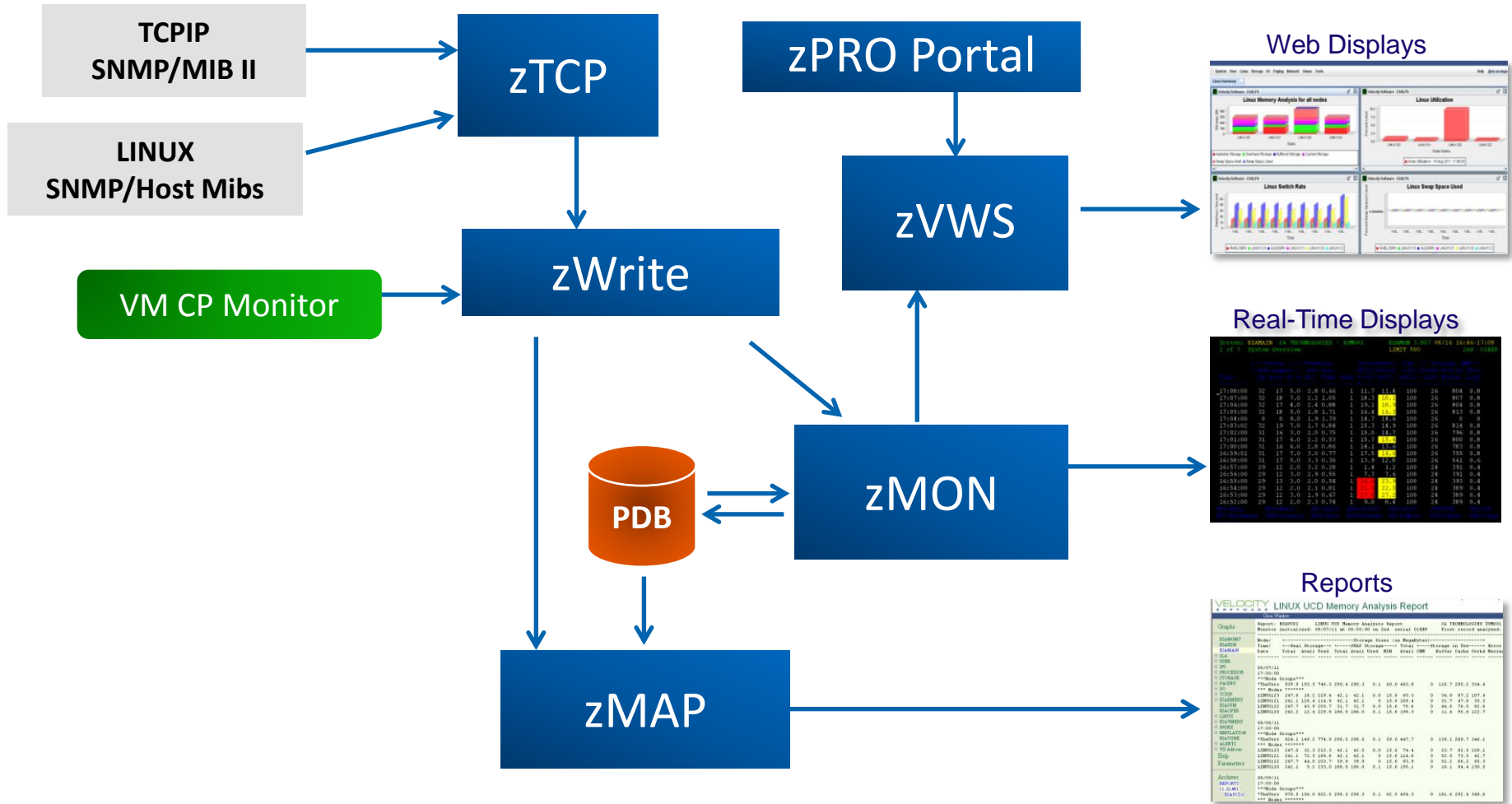
**Beware of “free”
software ... it will cost
you in hardware!**

**Some vendors
recommend only
measuring when there
is a problem because
of the high overhead
of their solution.**

One agent that uses 1% of a processor could cost you as much as 10 IFLs.

If you have 1,000 servers, “free performance software” can cost up to \$4M
(assuming fully loaded cost of IFL server is \$150-\$200K)

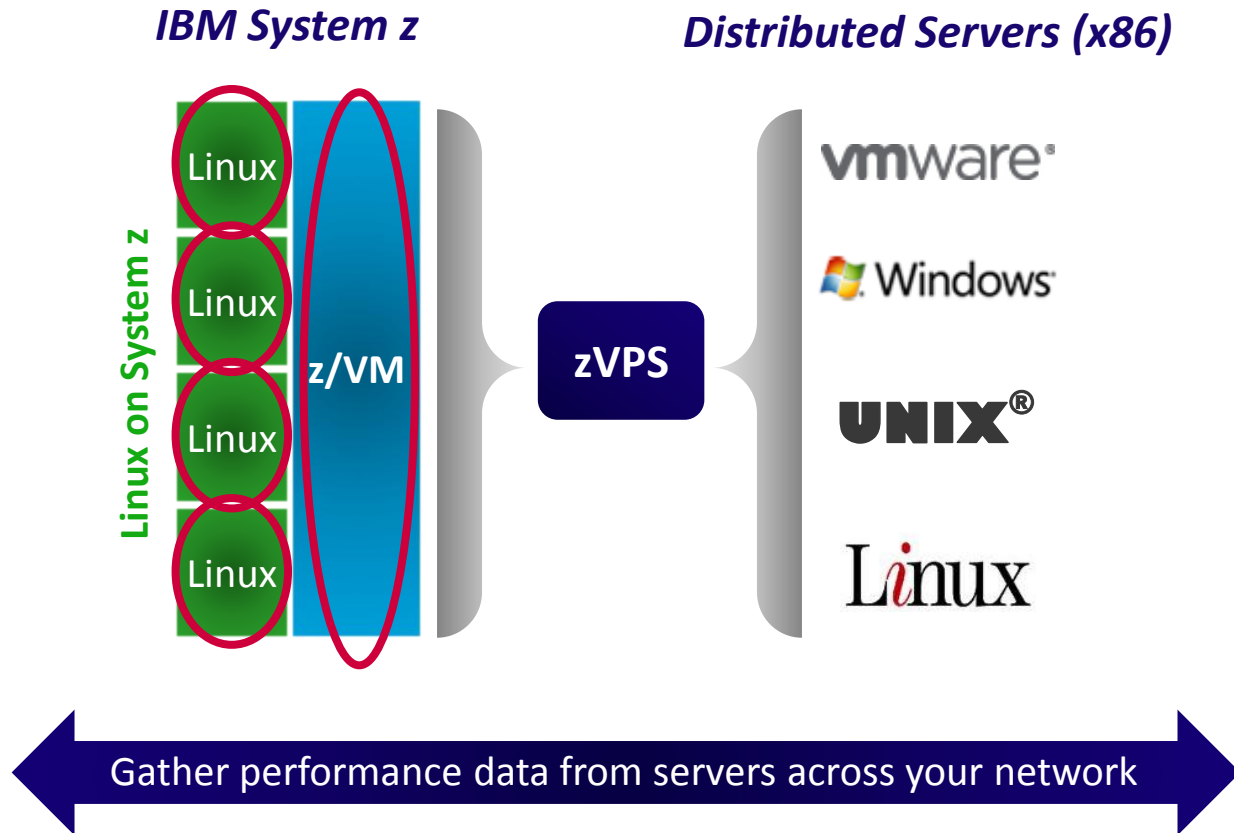
zVPS Performance Suite architecture



benchmark performance

comprehensive view of performance data

When planning a consolidation project, gather accurate data and execute benchmarks to determine the best platform to run your workloads



getting started with Linux on System z consolidation

use benchmarking to bridge the IT operations-business gap

How do we get started?



“We have IFL’s but are not using them, how do we get started?”

Which workloads are best fit?



“How do we determine which workloads would be good to consolidate to Linux on System z?”

How do we get buy-in across organization?



“We’ve identified good workloads, but...
...how do we get buy-in to move forward?”

IT Executives



Help IT make decisions based on delivery of business services at an optimal performance and cost.

Operations Managers



Provide detail performance data for both Linux on System z and distributed workloads for accurate comparison and analysis.

Business Owners



Use accurate and detail data to show businesses how their SLA’s can be met at a lower cost.

infrastructure requirements: performance analysis

- Why Performance Analysis: Service Level Management
 - Diagnose problems real time
 - Manage Shared resource environment
 - Any application may impact other applications
- Infrastructure Requirements
 - Analyze all z/VM Subsystems in detail, real time
 - DASD, Cache, Storage, Paging, Processor, TCPIP
 - Analyze Linux
 - Applications, processes, processor, storage, swap
 - Historical view of same data important
 - Why are things worse today than yesterday?
 - Did adding new workload affect overall throughput?



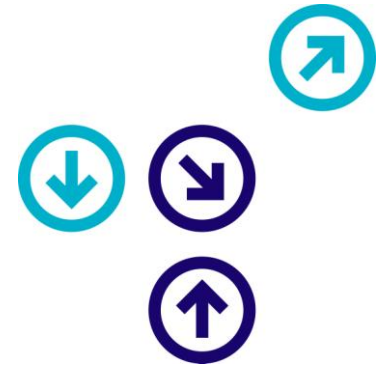
infrastructure requirements: operational alerts

— Why Provide Operational Alerts?

- Operations will manage 100's (1000's) of servers
 - Requires active performance management
- Alerts for processes in loops, disks 90% full, missing processes
- One test server in a loop impacts all other servers
- Requires active performance management

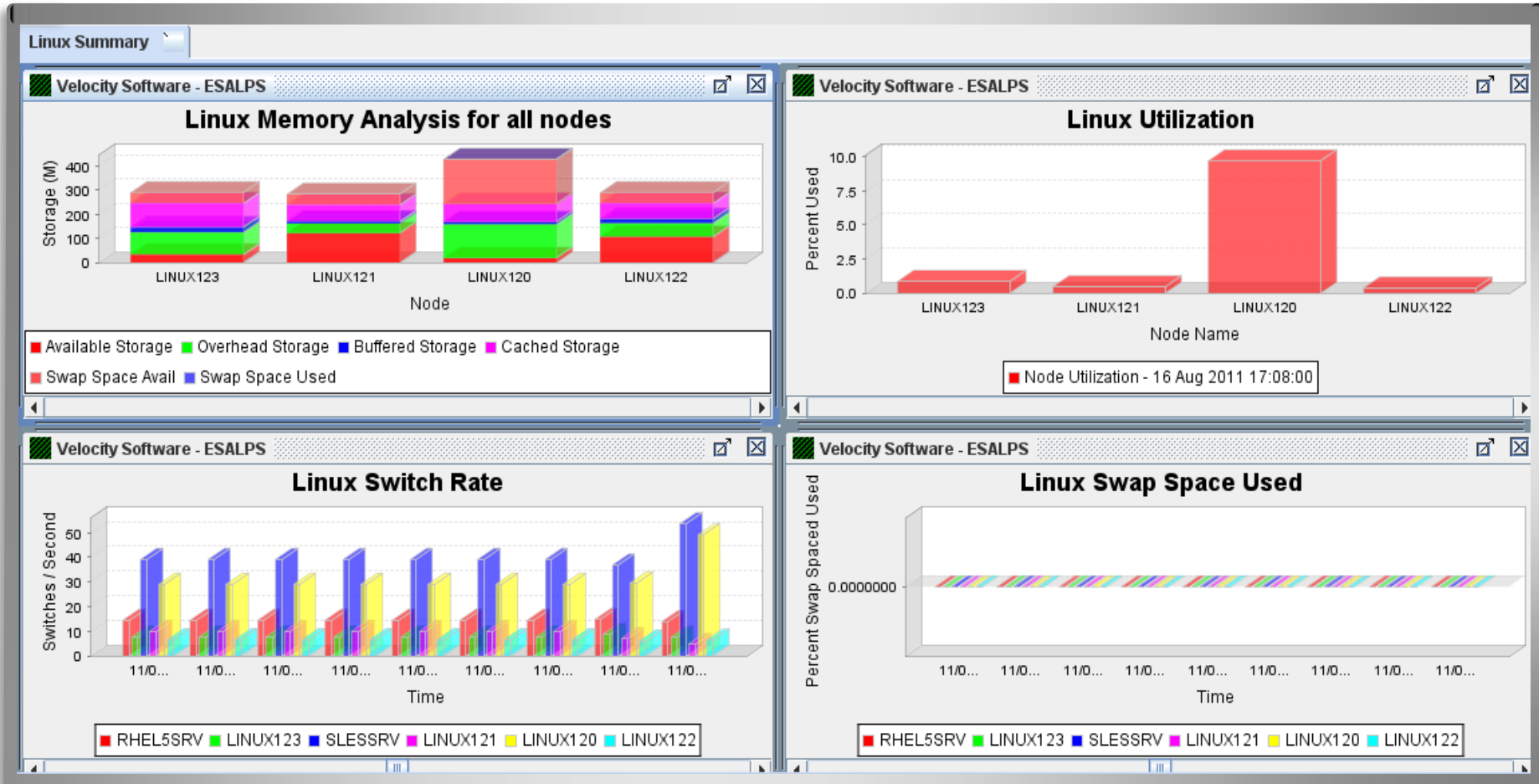
— Infrastructure Requirements

- Fast problem detection
- Interface to SNMP management console
- User tailored alerts
- Web based alerts



zMon

real-time display of performance information



Graphical display of up-to-the-minute Linux on System z performance data

Velocity zVPS Performance Suite

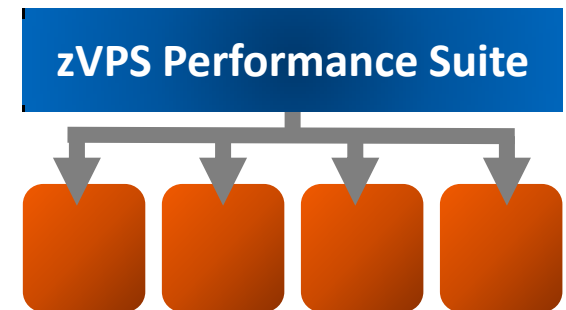
integrate with operations management solutions

— Operational alerts

- Ensure performance and capacity issues are immediately detected and reported
- Monitor critical resources and initiate corrective actions
- Provides access to all metrics in performance data base (PDB)
- Alerts can be easily customized and can be created on any PDB field
- Provides alerts via a 3270 interface or web-based browser
- SNMP alerts enable integration into your management console

— Operational alerts can also be viewed in:

- CA SYSVIEW® Performance Management
- CA NetMaster® Network Management
- CA OPS®/MVS Event Management and Automation
- CA VM:Operator



zVPS operational alerts

v1.0.2.9 Welcome

VELOCITY SOFTWARE zVIEW - CA TECHNOLOGIES - ZVM001 (ZVM001)
ZVM001 - Exceptions Analysis Alerts - 11/10/22 at 17:07

Graphs	Code	Alert Description
	LNDX	usr area on LINUX121 is 84.66% full
ESAMGMT	VMID	User RSCS idle for 62 minutes
ESAHDR	VMID	User VMSCHEM idle for 41 minutes
ESAMAIN	VMID	User ZVPS idle for 62 minutes
SLA		
USER		
SFS		
PROCESSOR		
STORAGE		

zVIEW provides graphical display of performance data via a web browser, including zMON alerts

v1.1.2.0 Welcome ZVPS

VELOCITY SOFTWARE zVIEW - CA TECHNOLOGIES - ZVM001 (ZVM001)
ESAUSLA - User Service Level Analysis

Graphs	UserID /Class	Transaction Logged	Rate Actv /Min	Avg Resp	Pct of Total	<-Target--> Total	Pct Missed	<-SLO Trans	<-Target--> Total	Pct Missed	<-SLO Trans	<Pct of Transactions with--> <Resp Time (sec) less than-->
ESAMGMT	System:	32.0	15.0	103	0.142	69.90	0	0	100.0	0	0	96.8
ESAHDR	*Servers:	11.0	2.0	38.0	0.026	94.74	0.2	95	100.0	0	1.50	95
ESAMAIN	*TheUsers:	12.0	6.0	44.0	0.203	52.27	0.2	90	100.0	0	2.00	90
SLA	*KeyUser:	5.0	3.0	21.0	0.224	61.90	0.2	90	100.0	0	2.00	90
ESAUSLA	RESLSRV	2.0	2.0	0	.	.	0.2	90	.	0	2.00	90
ESAUSLA	SLESSRV	2.0	2.0	0	.	.	0.2	90	.	0	2.00	90

Define and analyze user service level objectives

v1.1.2.0 Welcome ZVPS

VELOCITY SOFTWARE zVIEW - CA TECHNOLOGIES - ZVM001 (ZVM001)
ESAEXCP - Transaction Exception Log

Graphs	Time	Host	Response	Response (seconds)	CPU seconds	DASD I/O
	00:00:05	LINUX123	response time (seconds):	778.6,	55 CPU seconds,	463 DASD I/O
	00:58:58	LINUX122	response time (seconds):	729.2,	48 CPU seconds,	389 DASD I/O
	00:59:43	LINUX123	response time (seconds):	770.5,	52 CPU seconds,	595 DASD I/O
ESAMGMT	01:58:02	LINUX122	response time (seconds):	671.6,	46 CPU seconds,	387 DASD I/O
ESAHDR	01:59:57	LINUX123	response time (seconds):	769.7,	59 CPU seconds,	424 DASD I/O
ESAMAIN	02:55:03	LINUX121	response time (seconds):	62.0,	3.42 CPU seconds,	57 DASD I/O
SLA	02:58:40	LINUX122	response time (seconds):	713.6,	47 CPU seconds,	383 DASD I/O
ESAUSLA	02:59:55	LINUX123	response time (seconds):	767.2,	53 CPU seconds,	499 DASD I/O
ESAUSLA	03:03:32	LINUX123	response time (seconds):	60.5,	13 CPU seconds,	44 DASD I/O
ESAUSLA	03:23:49	LINUX123	response time (seconds):	87.9,	21 CPU seconds,	54 DASD I/O
ESAUSLA	03:44:15	LINUX123	response time (seconds):	81.6,	15 CPU seconds,	62 DASD I/O

Report on SLA exceptions

infrastructure requirements: capacity planning

— Why Capacity Planning: Future Service Levels

- How many more servers can you support with your current System z hardware and IFLs?
- What is capacity requirements for an application?
- Avoid crises *in advance*
- Consolidation planning – projecting requirements of the next 100 or 1000 servers

— Infrastructure Requirements

- Performance database (long term)
- z/VM **AND** z/Linux data
 - Must be usable by existing planners
- Resource requirements by server, application, user
- Interface to operations management



Velocity zVPS Performance Suite

capacity planning

Capacity Planning

- Provide trend data for projecting capacity requirements of future workloads
- Planning for capacity growth can prevent costly data center outages
- When assessing growth strategies, prevent costly hardware upgrades by better understanding capacity usage and needs
- Leverage existing software investment with interfaces to popular enterprise capacity planning facilities such as CA MICS Resource Management can help



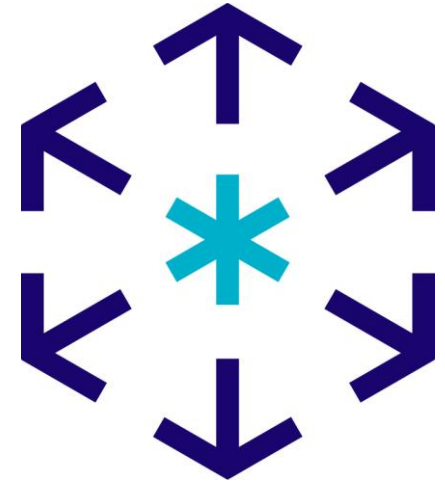
infrastructure requirements: accounting and chargeback

— Why Chargeback?

- Distributed chargeback model is by server
- Shared chargeback model is by resource utilized
- Convincing customers to move applications to “z”
- Encourages efficient/effective resource use
- Align IT to your business model

— Infrastructure Requirements

- Identify resource by server
- Identify resource by zLinux application
- **High capture ratio**
- Every site does it differently, so flexible data is key



Velocity zVPS Performance Suite provides detail chargeback accounting

zVIEW - CA TECHNOLOGIES - ZVM001 (ZVM001)
ESAACCT - User Accounting Analysis

Graphs	Time	UserID /Class	Virt. CPU	Over. CPU	Factor I/O	Stor.	Charge per Unit	Users Logged	Actv	Service Units /Sec	Units Total	Charges Total	Resources Used CPU	DASD I/O	Pages
ESAMGMT	15:06:00	System:	10.0	0	0.8	0.5	0.00	32	16	1748.9	104928	10.49	19.94	167	209K
ESAHDR	15:06:00	*Servers	10.0	0	0.8	0.5	0.00	11	2	4.9	297	0.03	0.02	0	593
ESAMAIN	15:06:00	*TheUsers	10.0	0	0.8	0.5	0.00	12	7	10.9	654	0.07	0.87	26	1253
SLA	15:06:00	KeyUser	10.0	0	0.8	0.5	0.00	5	3	9.0	540	0.05	1.32	0	1070
USER	15:06:00	RHEL5SRV	10.0	0	0.8	0.5	0.00	2	2	886.6	53192	5.32	0.25	27	106K
ESASRV1	15:07:00	LINUX122	10.0	0	0.8	0.5	0.00	1	1	447.9	26840	2.68	0.09	4	53671
ESASRV1	15:07:00	LINUX123	10.0	0	0.8	0.5	0.00	1	1	439.6	26338	2.63	0.19	4	52665
ESASRVC	15:06:00	SLESSRV	10.0	0	0.8	0.5	0.00	2	2	837.5	50244	5.02	17.48	114	99957
ESAACT															
ESAACT															
ESAACT															

Transition IT from a cost center to a profit center

- Deliver detail data needed for chargeback and accounting, with complete and accurate data for both Linux on System z applications and z/VM virtual machines
- Data is captured at the process level
- Chargeback Linux on System z resource usage to applicable business, department or agency
- Data can also be processed in CA MICS® Resource Management

best-in-class Linux on System z performance management

Velocity zVPS Performance Suite

- Detail analysis and reporting
- Operational alerts and tuning tools
- Capacity planning
- Chargeback and accounting
- Performance benchmark comparisons

Data
Accuracy

Is your Linux server
data valid?

What is the
data capture ratio?

Minimize
Overhead

Is your monitoring
tool creating
performance
problems?

protecting Linux on System z application and system data

Linux on System z

taking it to the next level

- How can we ensure business continuity in the event of data corruption or disaster?
- If we move workloads to Linux on System z, how do we address compliance requirements related to data protection?
- How can we perform Linux on System z data backups within very limited backup windows?
- What backup and recovery strategies should we be using?



UPSTREAM for Linux on System z

best-in-class data protection



- **Fast, scalable** and highly **reliable** backup and recovery for Linux on System z
- **Only** solution that will **backup up to z/OS**
 - Leverage existing z/OS skills and infrastructure for operational efficiency
 - Rely on proven z/OS disaster recovery strengths

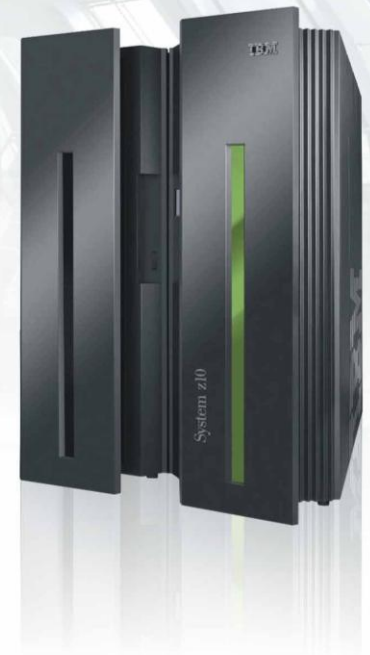
Business
Continuity

Peace of
Mind

UPSTREAM for Linux on System z

leverage existing z/OS infrastructure

- Leverage existing z/OS infrastructure including tape management, security and scheduling
 - Automate and integrate backup operations with CA 7[®] Workload Automation and CA OPS/MVS[®] Event Management and Automation
 - Control retention and manage backup tapes with CA 1[®] Tape Management
 - Control access to backup and recovery operations through CA ACF2[™] or CA Top Secret[®]



comprehensive backup and recovery for Linux on System z

UPSTREAM for Linux on System z



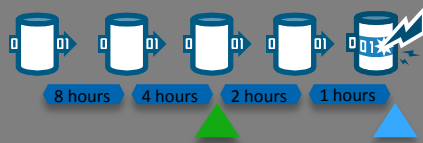
- Provides continuous business operation for Linux on System z applications
- Extends your investments in existing mainframe resources: CPU, tapes, virtual tape, tape drives, staff
- Protects software investment by utilizing existing z/OS management software
- Extends mainframe security and automated operations to Linux on System z data protection
- Provides backup and recovery for very large amounts of data without negatively impacting corporate network performance
- File level backups directly to z/OS mainframe tape or DASD

importance of file level backups

Restore Time Objective



Recovery Point Objective



**UPSTREAM
File Level
Backups**

Service Level Agreements



Regulatory Compliance



why backup to the mainframe?



Most Reliable

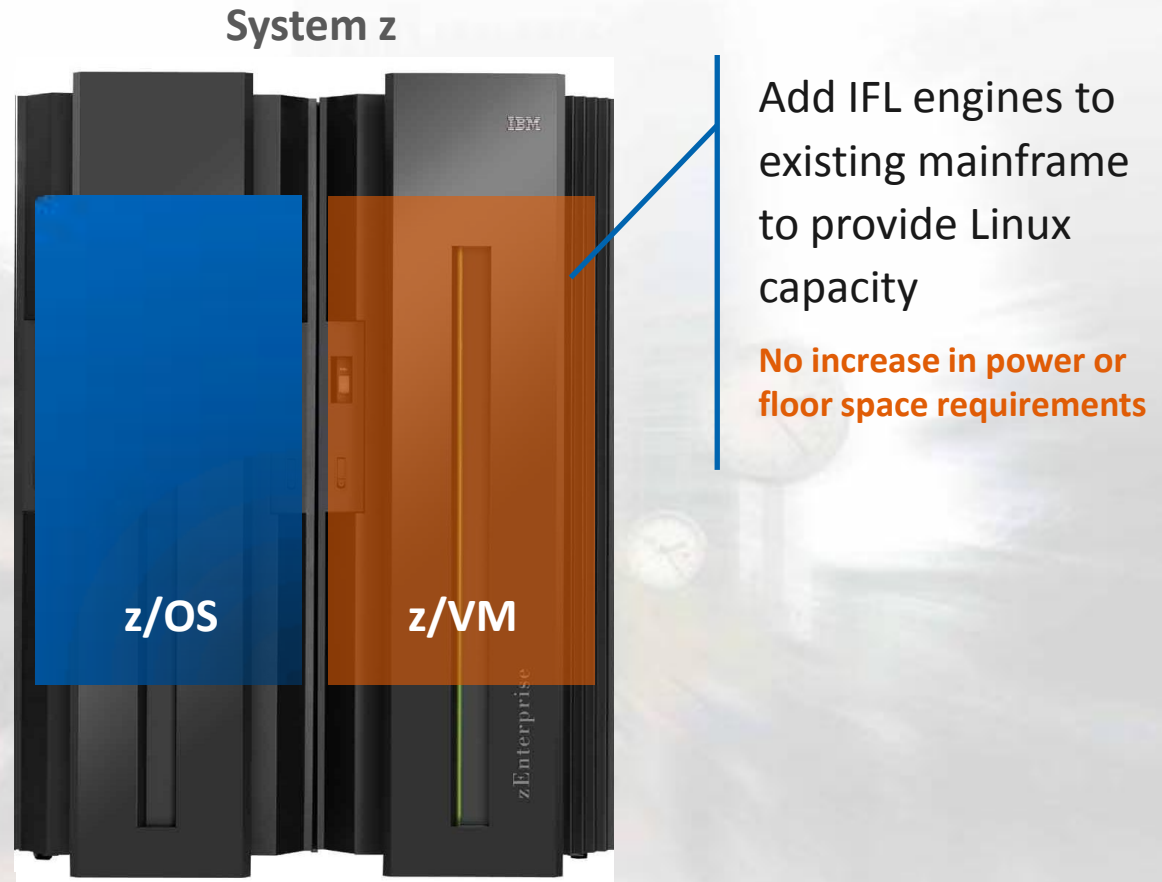
Most Efficient

And provides the most **cost effective** way to protect your critical applications and data

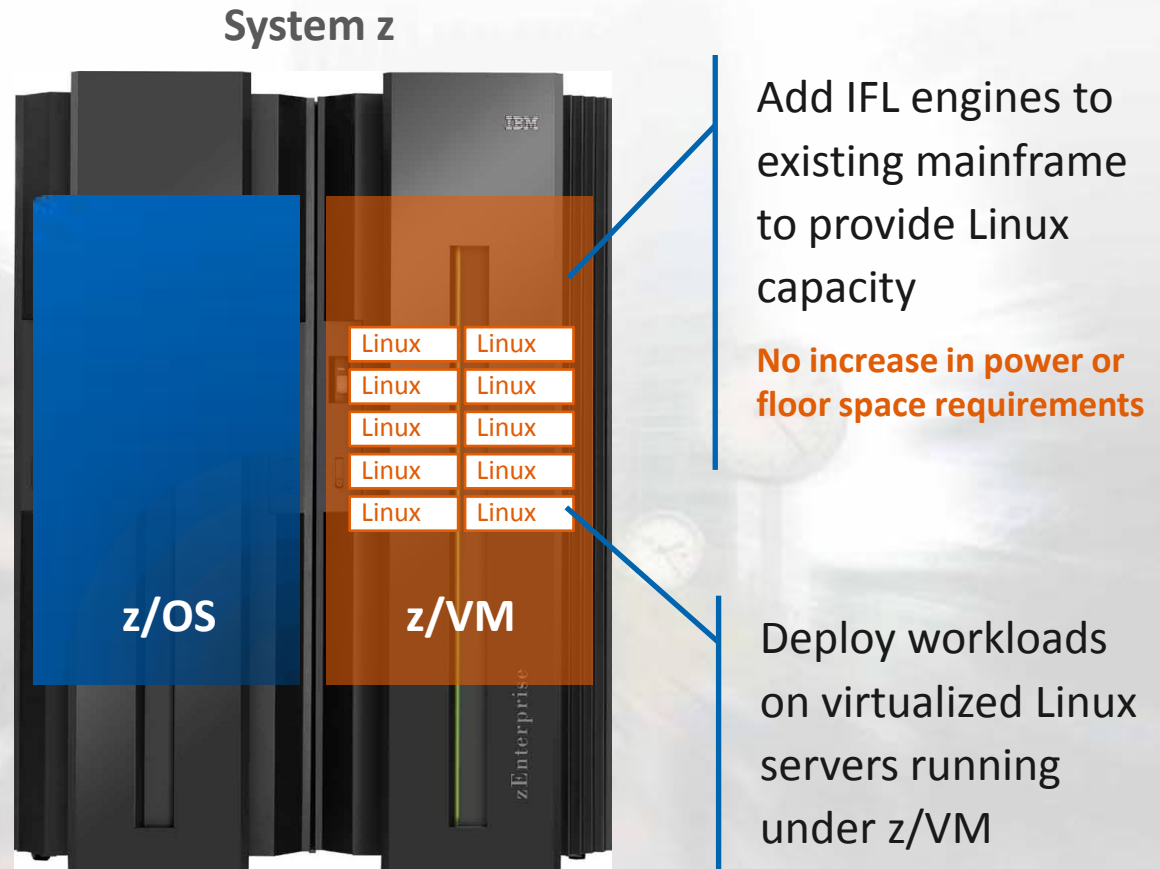
how are organizations using Linux on System z?



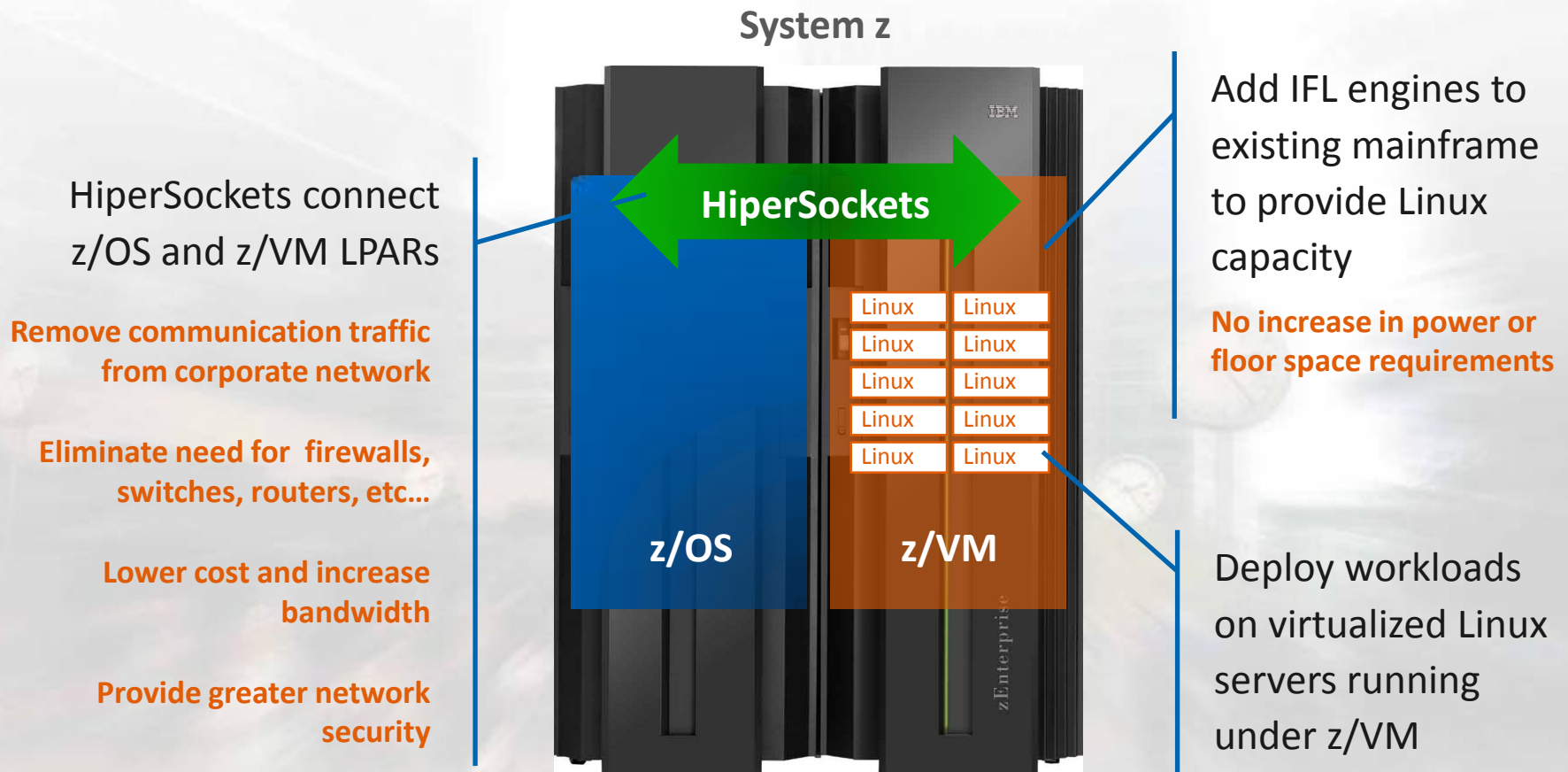
how are organizations using Linux on System z?



how are organizations using Linux on System z?



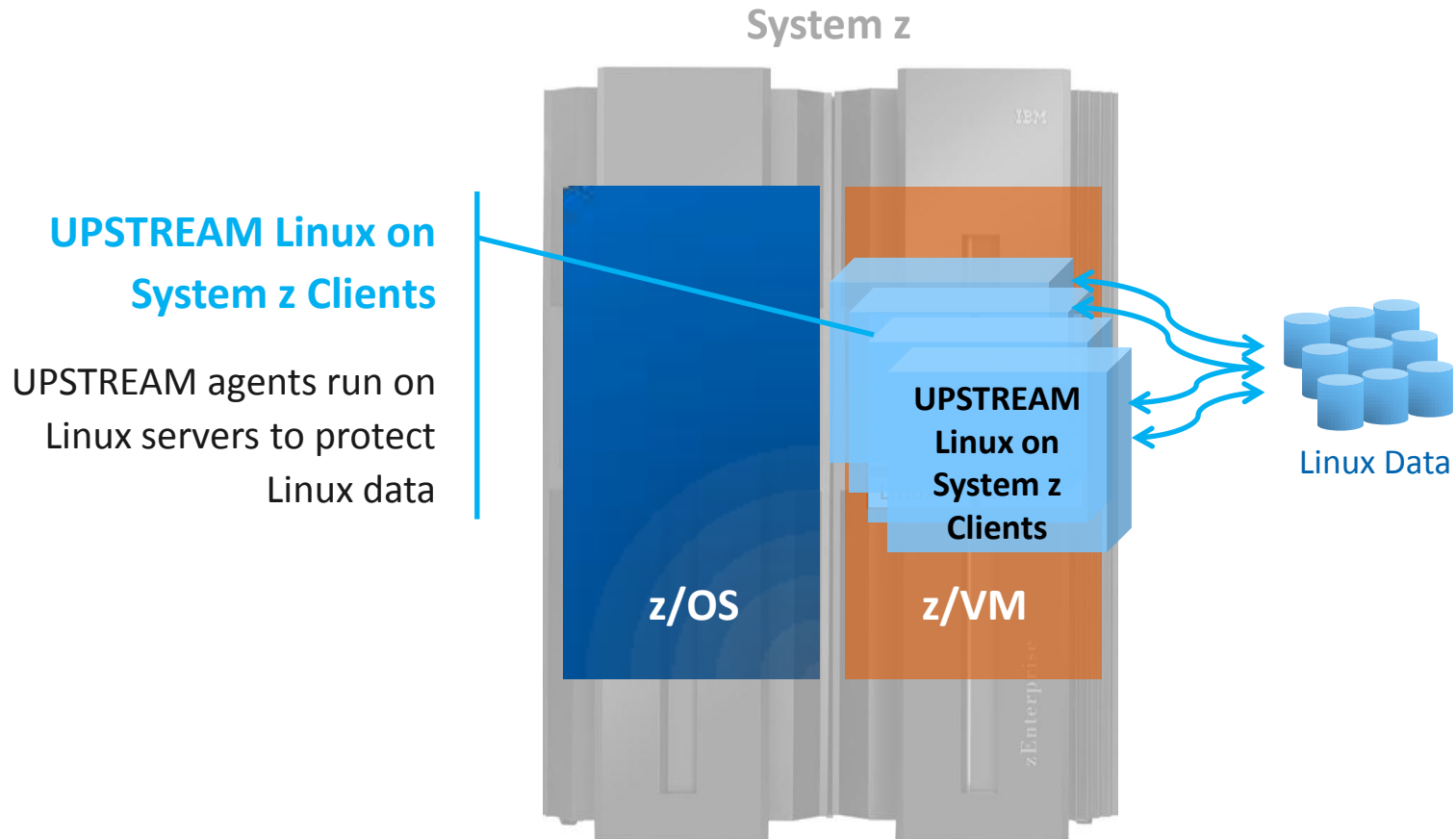
how are organizations using Linux on System z?



UPSTREAM for Linux on System z architecture



UPSTREAM for Linux on System z architecture



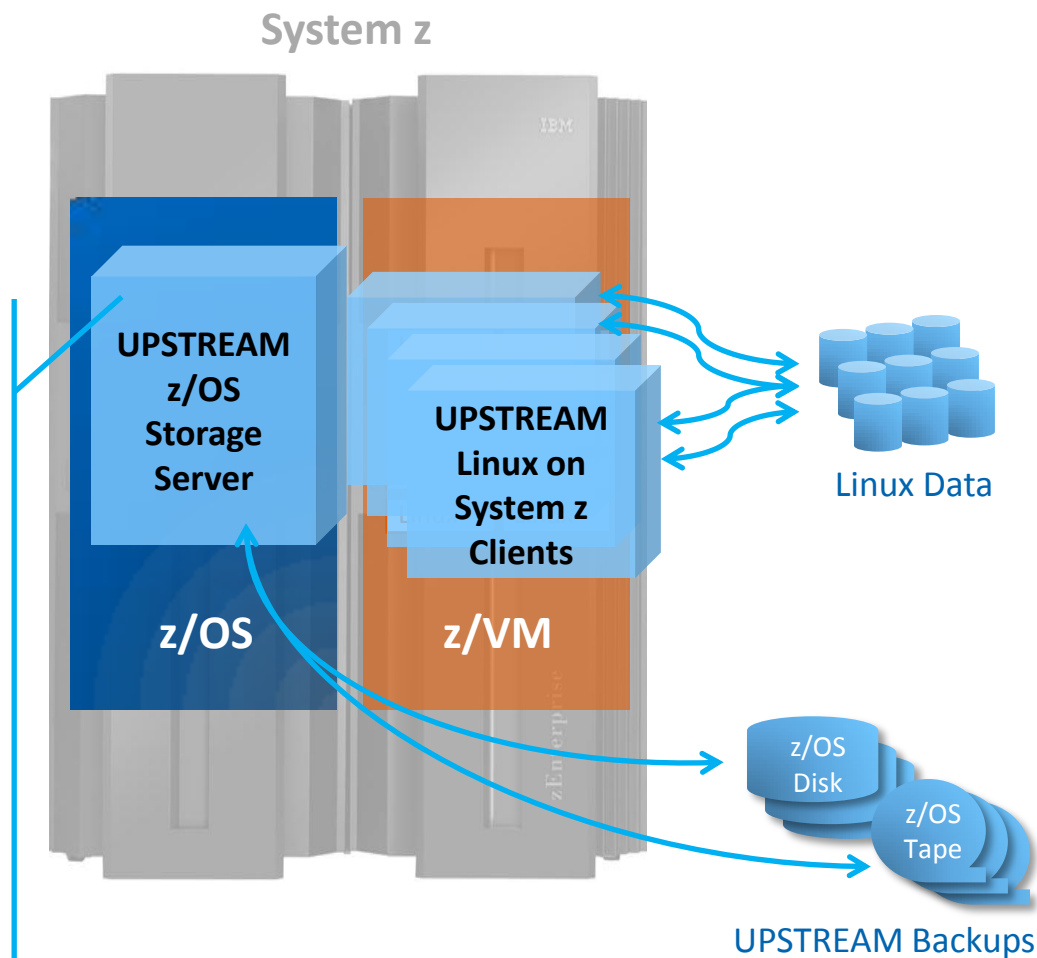
UPSTREAM for Linux on System z architecture

UPSTREAM z/OS Storage Server

UPSTREAM is only data protection solution that provides backup to z/OS storage server

Enabling backup to z/OS tape or disk

For increased reliability and compliance



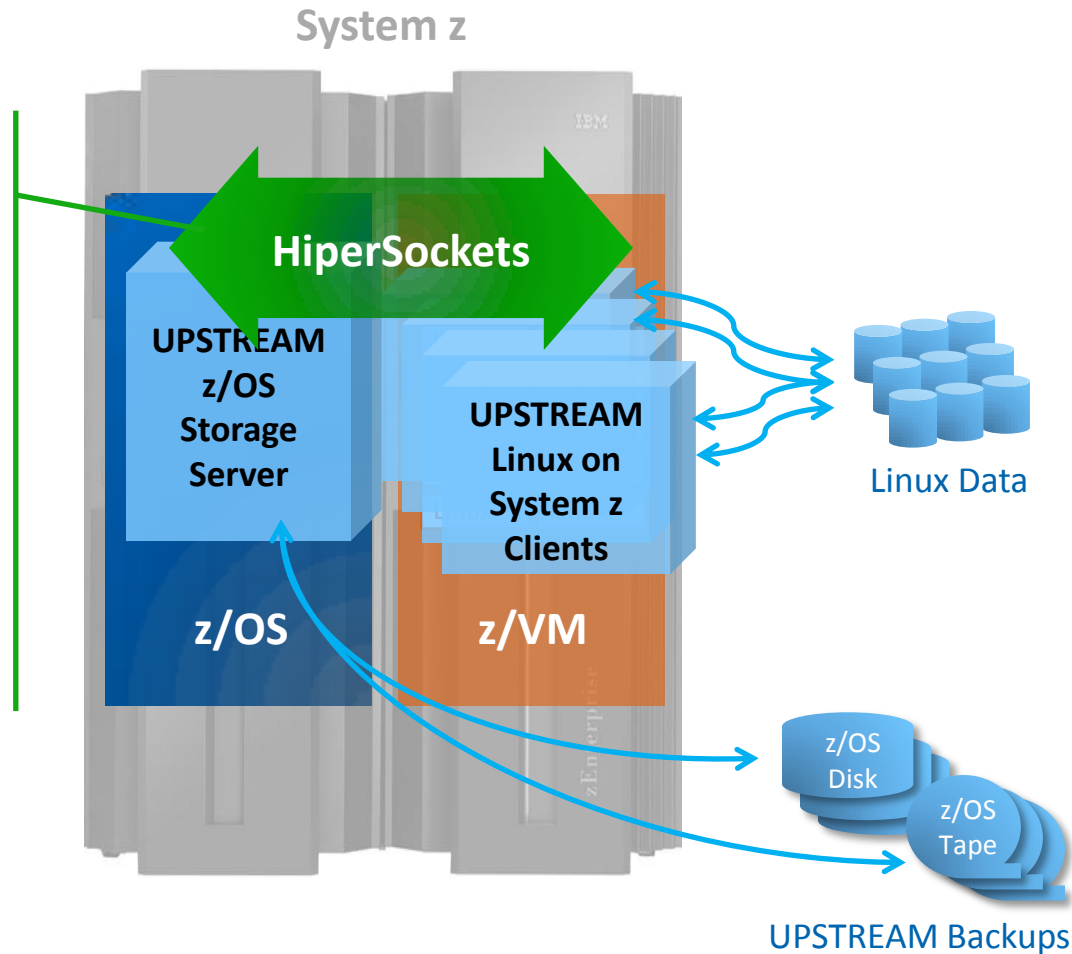
UPSTREAM for Linux on System z

innovative high performance data protection

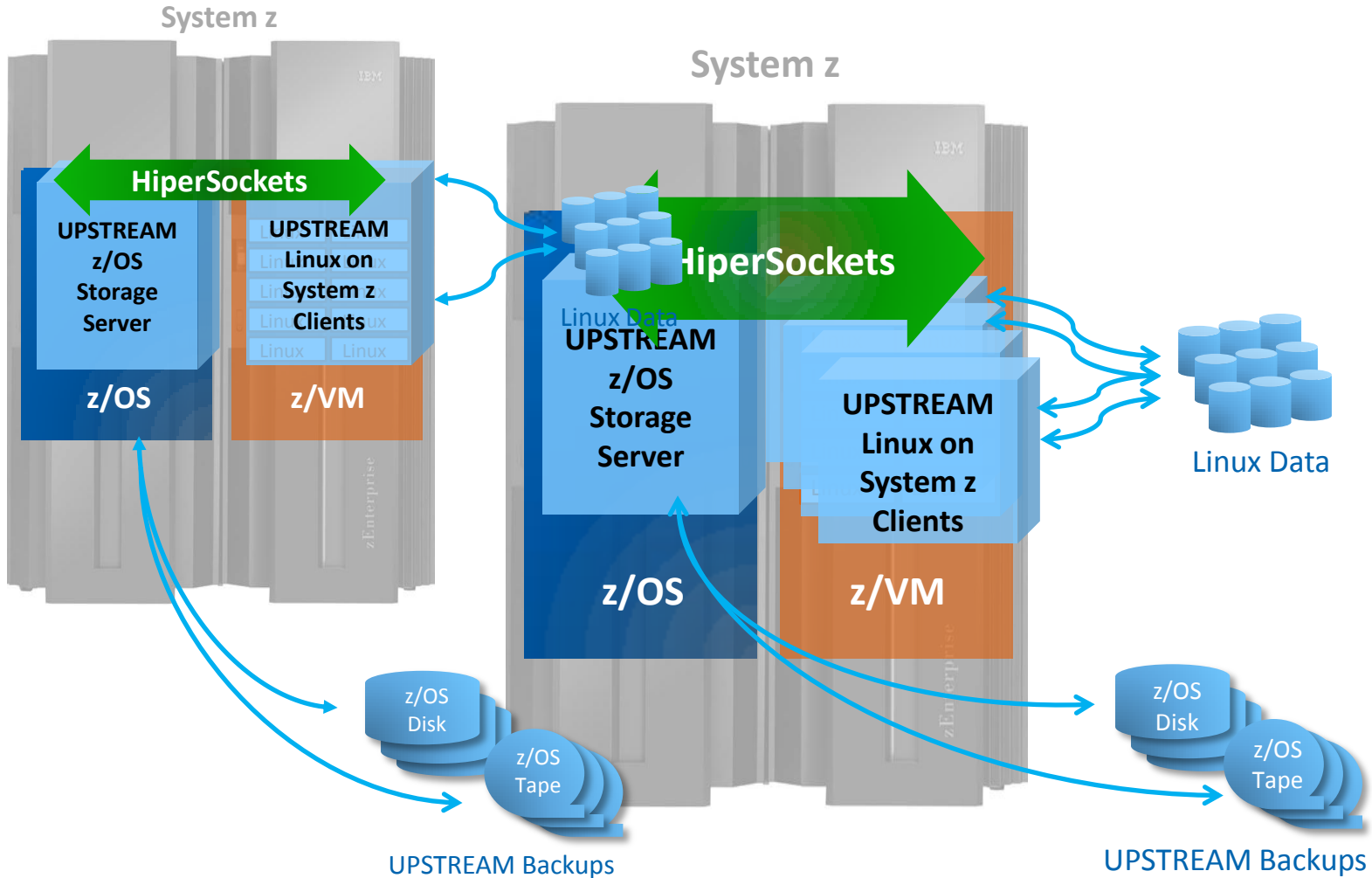
UPSTREAM exploits HiperSocket Technology

Takes backup and recovery off corporate network

Protect very large amounts of data without negatively impacting corporate communications or customer access

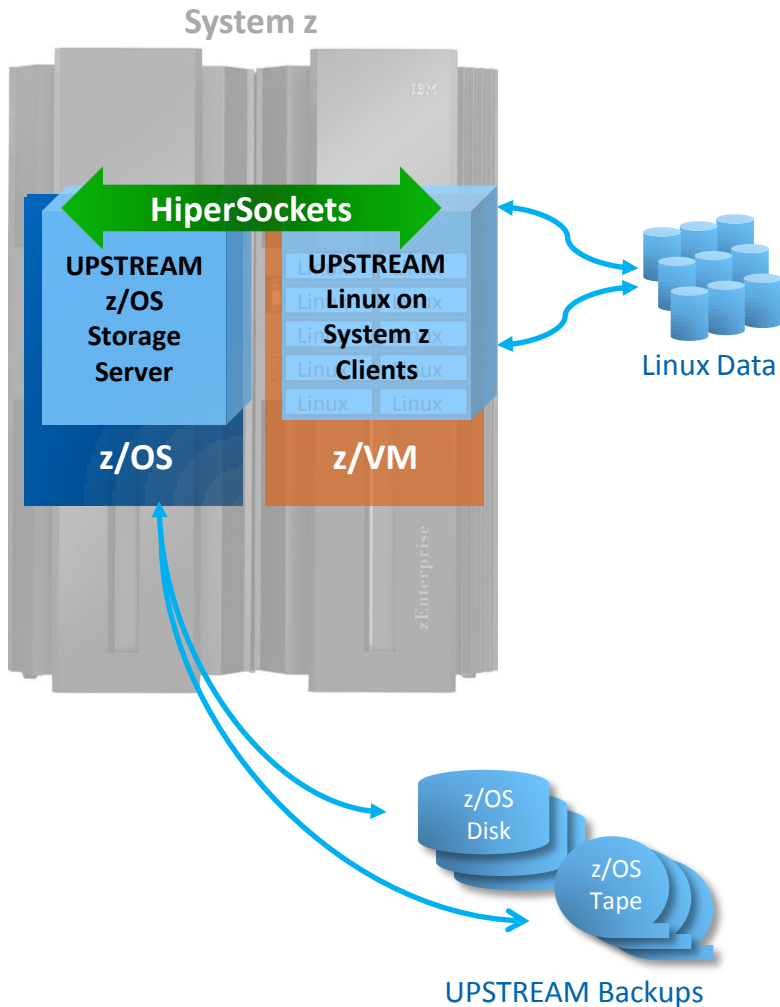


UPSTREAM for Linux on System z scalable architecture

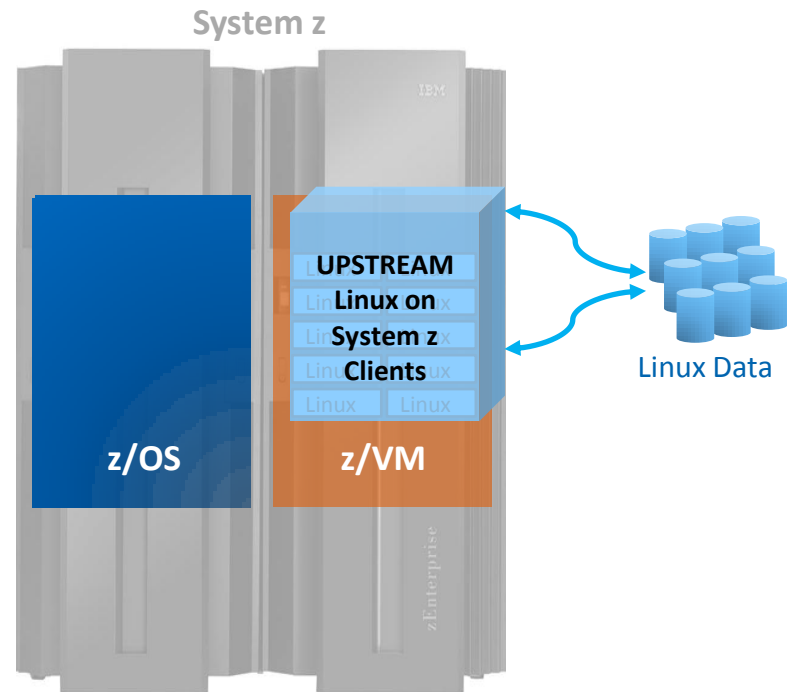


UPSTREAM for Linux on System z

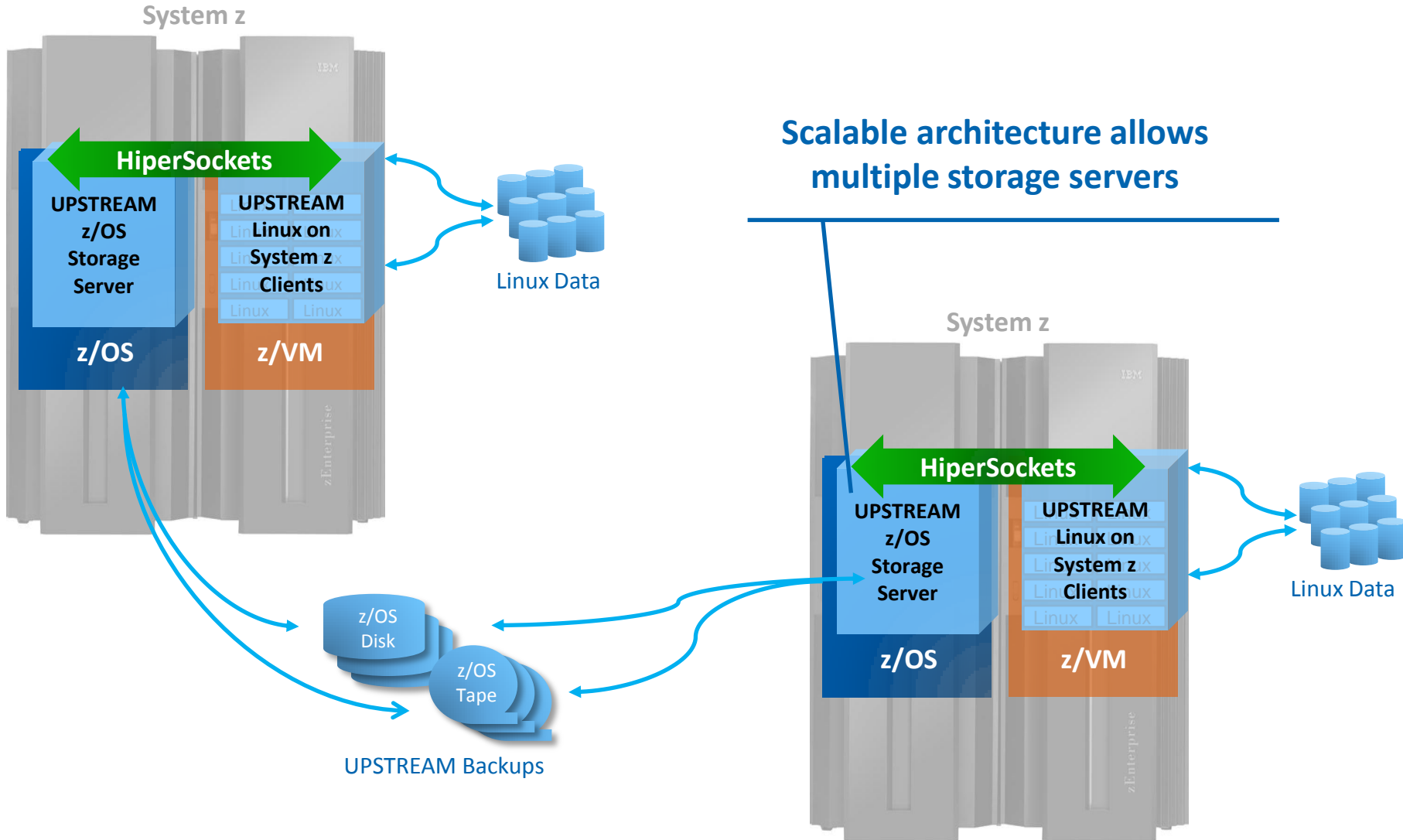
scalable architecture



UPSTREAM architecture provides scalability to protect your data as your business grows

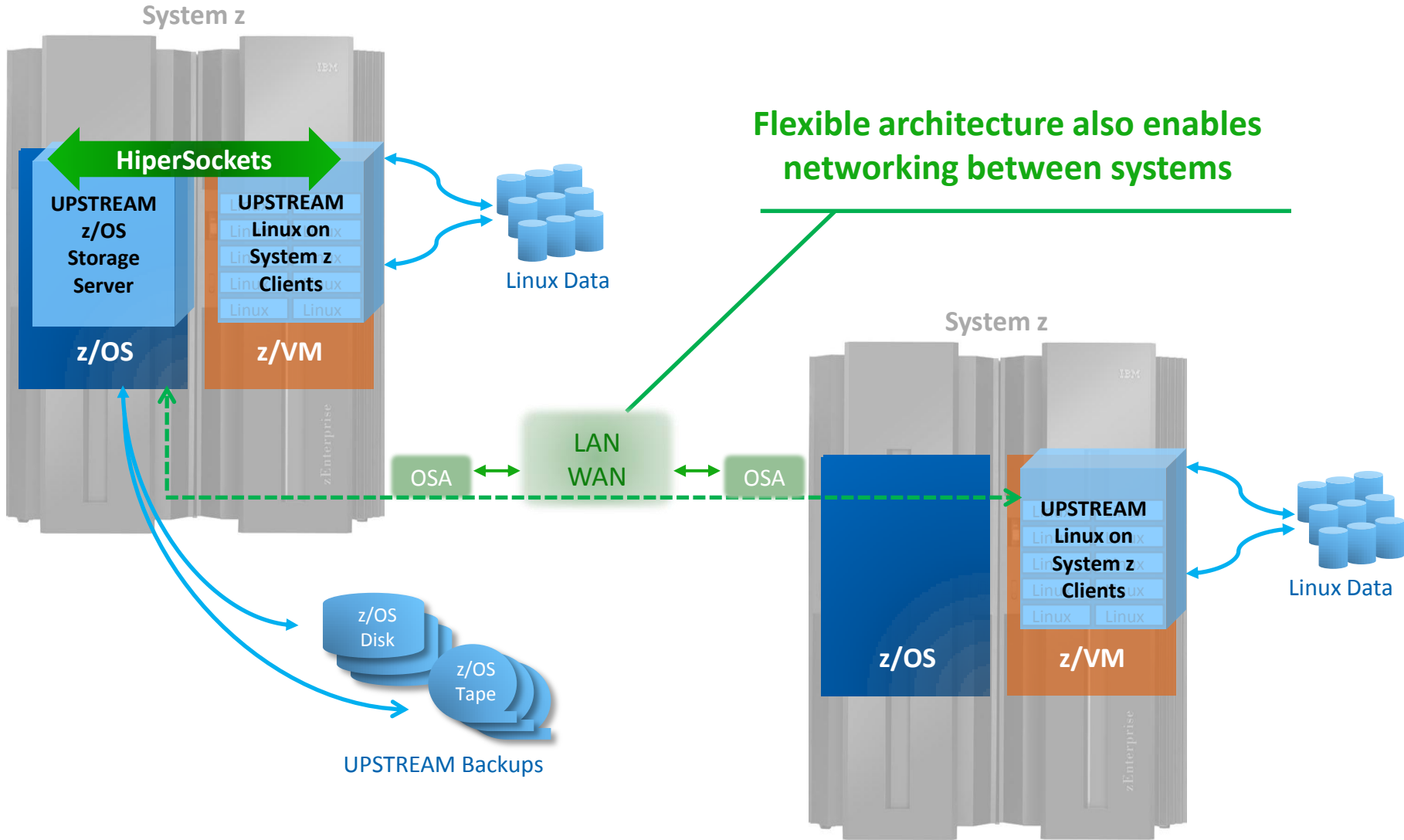


UPSTREAM for Linux on System z scalable architecture



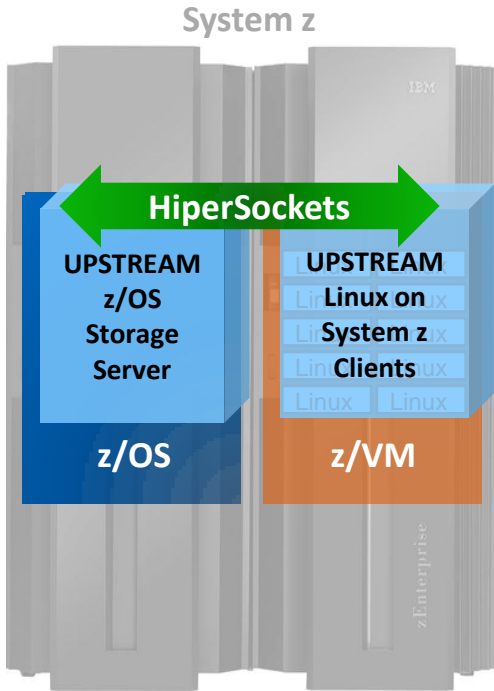
UPSTREAM for Linux on System z

scalable architecture

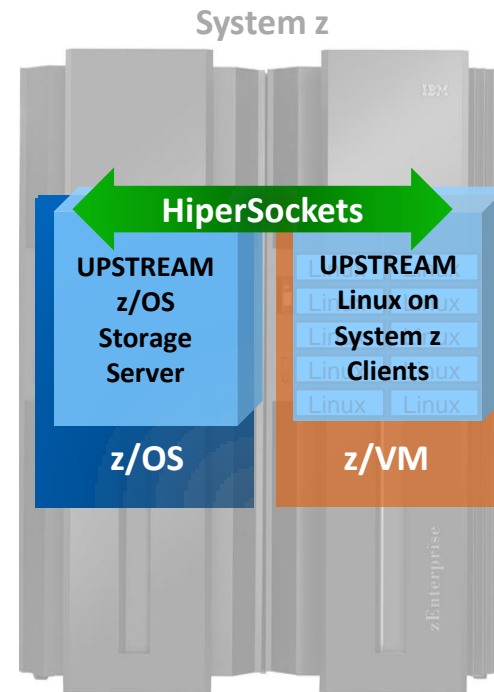
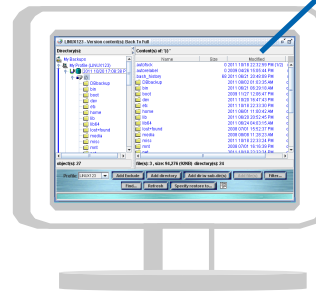


UPSTREAM for Linux on System z

centralized control and view of backups

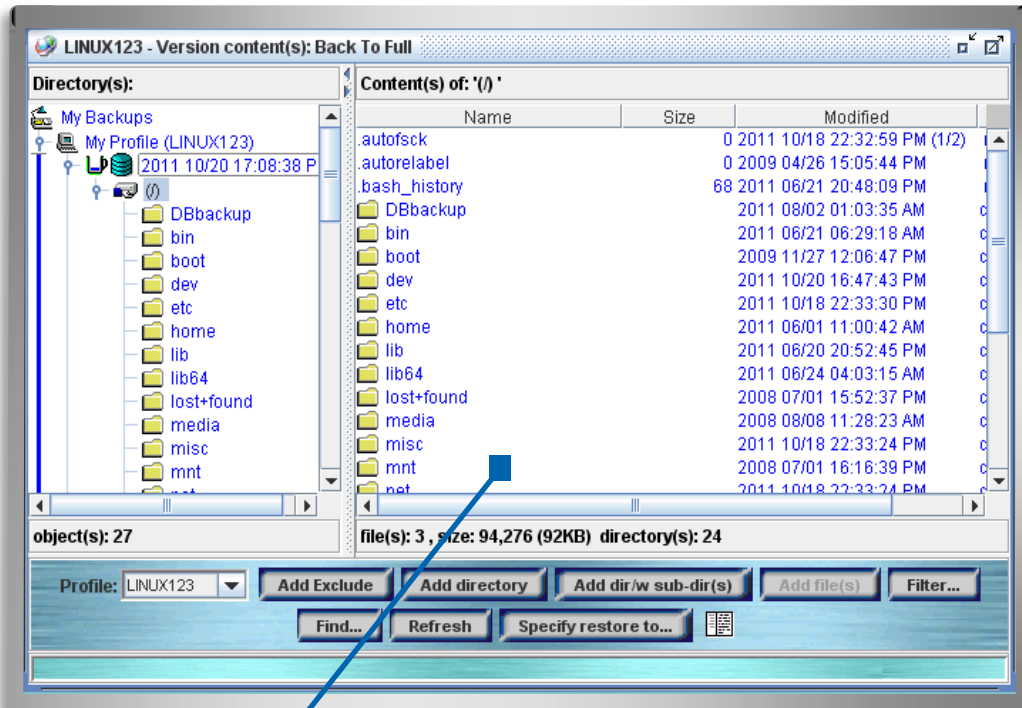


Flexible management interface provides centralized view and control of Linux on System z backups



UPSTREAM “Director”

save time by simplifying and automating data protection



User-friendly graphical management interface for centralized single view and control of Linux on System z backups

- Communicate, control and monitor Linux on System z backups
 - Initiate backups and restores
 - Check status of running operations
 - Retrieve log files
 - Perform profile configuration
 - Run pre- and post-processing jobs
- Run from web browser for easy cross platform operations
- Keep storage administrators efficient, aware and advised

data reduction technology

reduce overhead and speed up backup/recovery

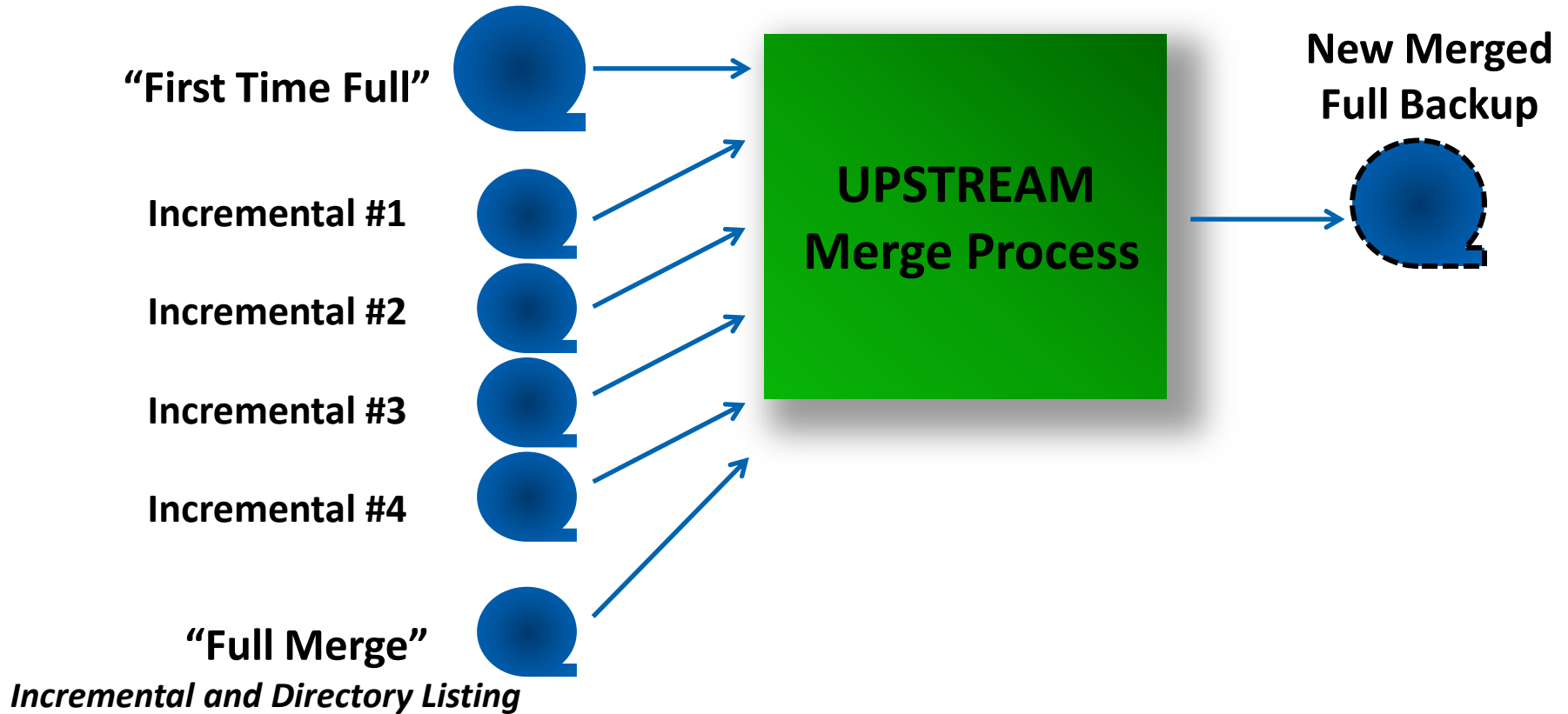
Advanced Data Reduction Technology Features

- Data Compression
 - 5 levels available
- Synthetic Full Merge Backup
 - Logical file granularity
 - Incremental backup processing
 - Eliminates need to do more than one “traditional” full backup
- Block level segmented backup support
- Exclude/Include
- Migration or disk grooming of inactive data
- Integration with leading mainframe de-duplication hardware appliance makers




synthetic full merge technology

minimizes data transmission and reduces backup time




high performance database agents

efficient, reliable protection for large amounts of data



On-line agents for DB2/UDB, ORACLE, LOTUS Notes



Manage large amounts of data within scheduled backup window with “hot backup” technology



Perform backups without bringing down database

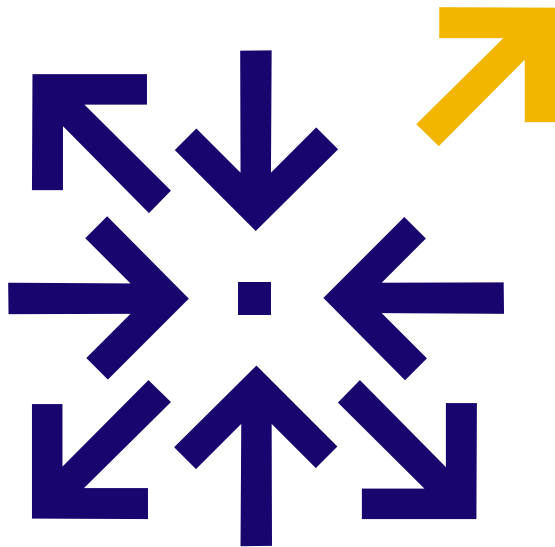


Allows continuous customer access

UPSTREAM

“Rescuer” facility

Quick and easy disaster recovery of Linux on System z applications, systems, configurations and data



- Backup the whole system without taking it offline
- Clone a complete machine easily
- Reduces training and administration while saving resources
- Makes recovery more consistently successful

UPSTREAM for z/OS UNIX

storage backup for z/OS UNIX System Services (USS)

- Enables centralized storage management of hybrid mainframe environments
- Provides ad hoc and automated, unattended backup/restore, file transfer and storage management operations
- Further leverage strengths of z/OS Unix to manage Web serving, WebSphere, Lotus Domino

Complementary storage backup solution that is sold separately

UPSTREAM
for
z/OS UNIX

File level backup and recovery
for ZFS/HFS files under
Unix System Services for z/OS

additional CA solutions that optimize Linux on System z

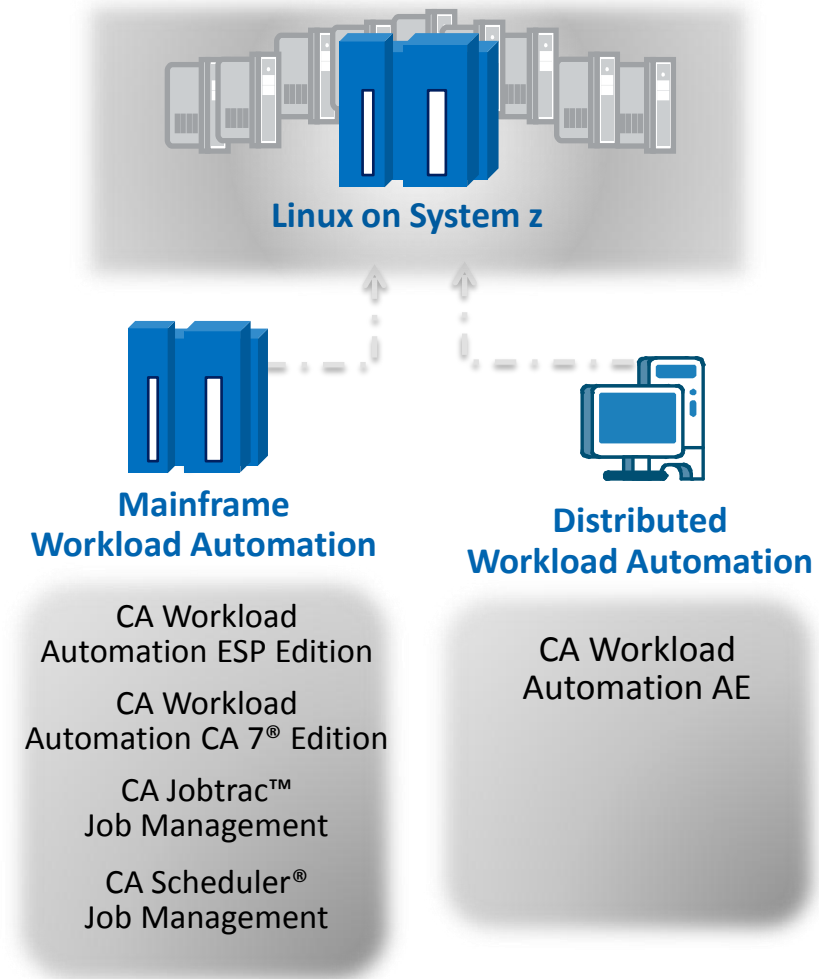
CA solutions for flexible workload automation

Challenge

- Need to streamline management of workloads running on Linux on System z
- Require support across multiple platforms

CA Cross-Platform Workload Automation

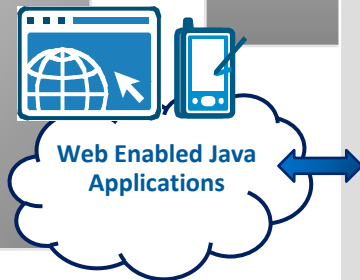
- Automate scheduling, execution and tracking of important Linux on System z workloads
- Collaboratively run Linux on System z workloads using CA mainframe and distributed workload management products



secure entire z/VM and Linux on System z infrastructure

CA SiteMinder® Web Access

Application security
for web applications
running on
Linux on System z



CA Top Secret® for z/VM CA ACF2™ for z/VM CA VM:Secure CA Access Control

Resource protection for z/VM
and Linux operating system
resources such as programs,
files, directories, etc.

CA PAM Client for Linux

Integrated user
authentication

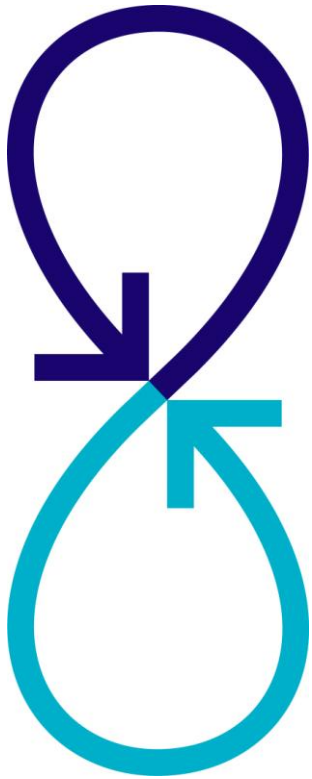
Validate Linux
identities against
existing z/OS or
z/VM user definitions

z/VM

z/OS

CA Mainframe Connector for Linux on System z

Cross-platform automation and integrated message handling for Linux on System z



- Connector for Linux on System z connects CA SOLVE:Operations Automation with z/VM systems and their z/Linux guests via IP Connections
 - Linux on System z and z/VM unsolicited event traffic is normalized and merged with z/OS console messages in CA SOLVE:Operations Automation
 - Linux on System z and z/VM command-and-response functions are available and behave like a specialized z/OS system command
- Available with CA SOLVE:Operations® Automation R11.9
- Planned availability with CA OPS/MVS® Event Management and Automation release targeted for mid-2012

other CA solutions supporting Linux on System z

- CA Gen
 - Model-driven application development and transformation solution for migrating applications to Linux on System z
 - Reuse existing assets, migrate without rewriting code
- CA XCOM[®] Data Transport[®]
 - High-performance data transport capabilities for mission critical applications
 - Reliable, efficient and secure
- CA Easytrieve[®]
 - Widely popular, easy-to-use information retrieval, sophisticated report writing and comprehensive application development capabilities
 - Leverage existing skill sets on Linux
- CA Storage Resource Manager
 - Provides an enterprise-wide view of storage resources for Windows, UNIX, Linux and z/OS (via CA Vantage Storage Resource Manager)
 - New file and volume level scanning for Linux on System z

What about Cloud?

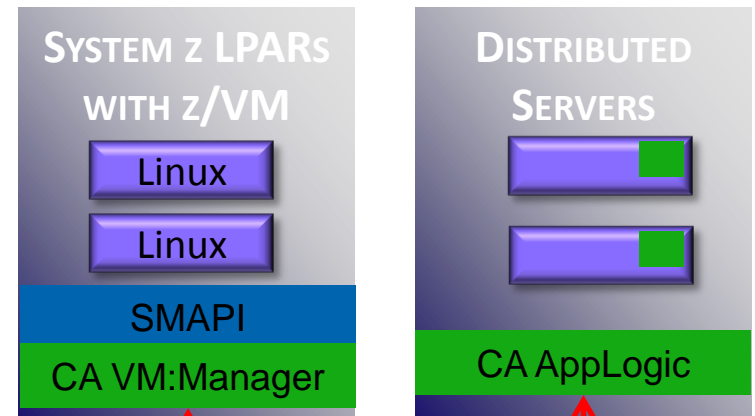
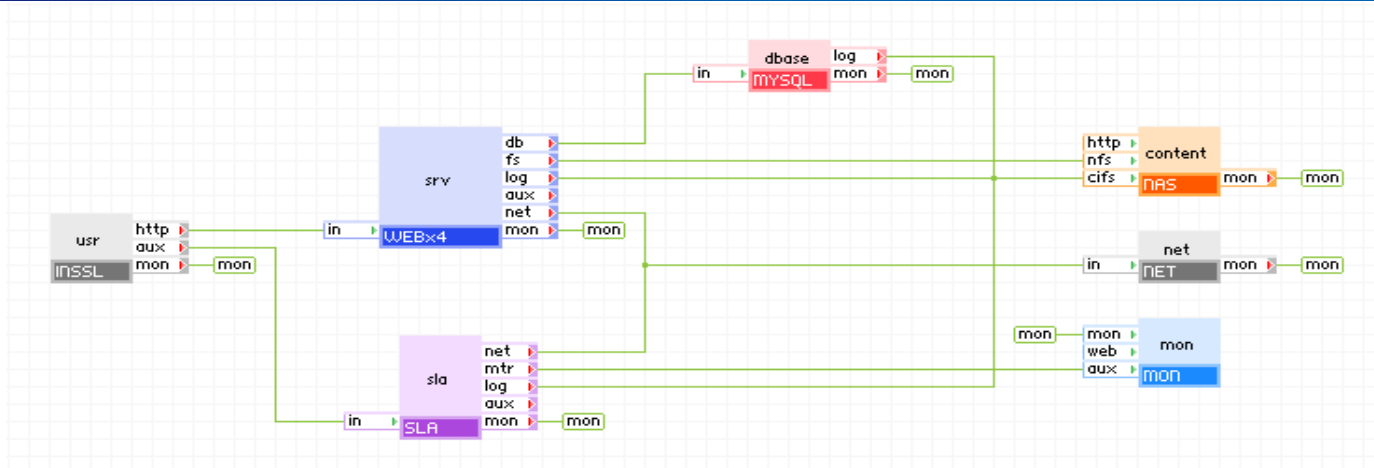
CA AppLogic® – what is it?

CA AppLogic is a turnkey cloud computing platform

Enables enterprise customers to quickly provision, deploy, and manage cloud applications and supporting infrastructure



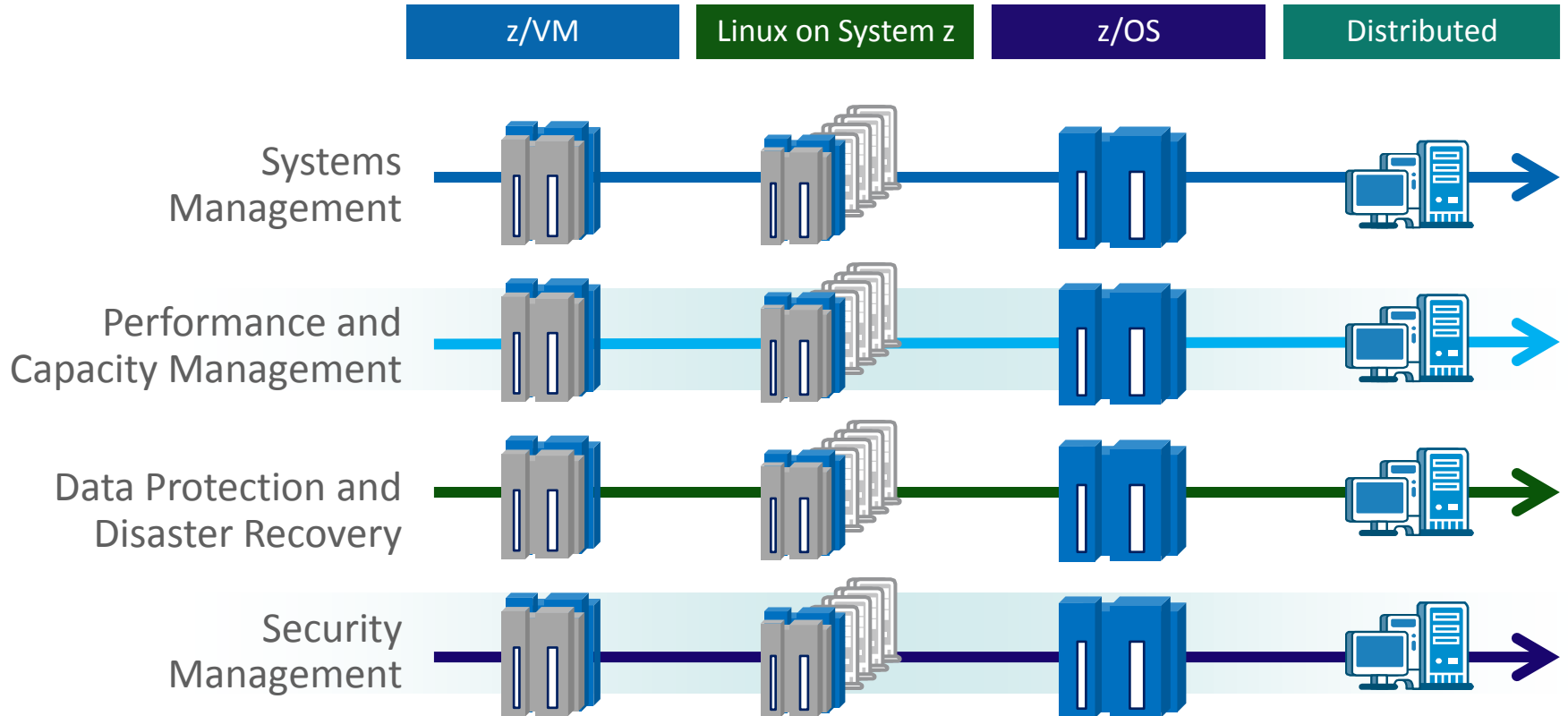
enhancing CA AppLogic to support Linux on System z



Network

Summary

CA Technologies cross-platform enterprise management



CA management for Linux on System z

comprehensive, best in class portfolio

CA VM:Manager™ Suite
for Linux on System z

CA Workload Automation

Systems Management

CA VM:Archiver™
CA VM:Director™
CA VM:Schedule™
CA VM:Spool™
CA VM:Operator™
CA VM:Tape

UPSTREAM for
Linux on System z

CA VM:Backup (HiDRO)

Data Protection and Disaster Recovery



Performance and Capacity Management

Velocity zVPS™
Performance Suite

CA Top Secret® for z/VM
CA ACF2™ for z/VM
CA VM:Secure

Security Management

Provisioning

CA VM:Secure
CA VM:Director™
CA VM:Archiver
CA AppLogic for Mainframe (2012)

ca.com/mainframe/linux



why CA Technologies for Linux on System z?



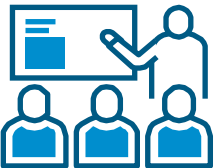
Market-leading Technology



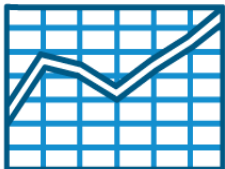
**Comprehensive Set of Linux on System z
and z/VM Solutions**



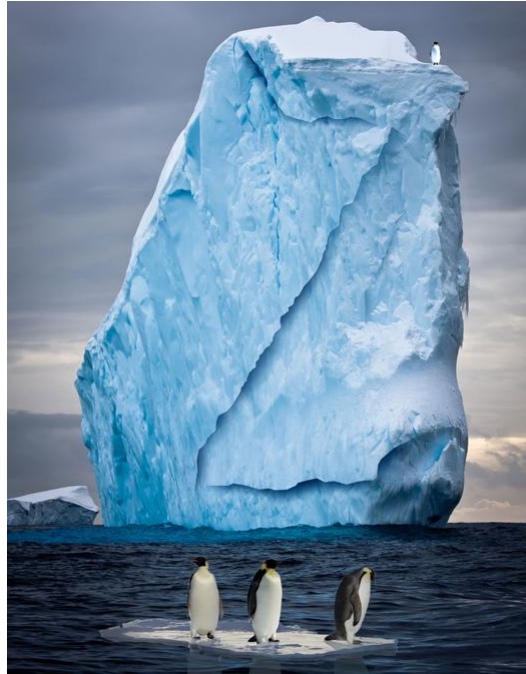
Focused Vision and Strategy



**Domain Expertise for Distributed,
Mainframe and Cloud Environments**



**Proven and Viable
Vendor**



Linux on System z offers
significant cost savings...
...but who can help you
optimize it?

CA Technologies can

Visit
ca.com/mainframe/linux
today!

thank you