

Power Systems Hardware announcement Oct. 2016

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Power Systems




The POWER8 family is a complete line of servers that can produce the best results for any business need






Scale-out Servers for Linux Clusters


- Innovative, fit for purpose solutions
- Volume and lowest cost
- Can purchase on-line



S812LC
1 socket, 2U, Linux
8 or 10 cores




S822LC - GCA
2 socket, 2U, Linux
16 or 20 cores




S822LC - GTA
2 socket, 2U, Linux
16 or 20 cores

Scale-out Servers for Linux


- High Performance, Scalability and Consolidation
- Good virtualization, utilization, security, RAS



S812L
1 socket, 2U, Linux
10 - 12 cores




S822L
2 socket, 2U, Linux
16 - 24 cores




S824L
2 socket, 4U, Linux
8 - 24 cores

Scale-out Servers for AIX, IBM i, Linux


- High Performance, Scalability and Consolidation
- Good virtualization, utilization, security, RAS



S822
1 or 2 socket, 2U
6 - 20 cores




S814
1 socket, 4U
4 - 8 cores




S824
2 socket, 4U
6 - 24 cores

Enterprise Servers (AIX, IBM i, Linux)


- Highest Performance, Scalability and Consolidation
- Extreme virtualization, utilization, security, RAS



E850
16 - 48 Cores
128 GB - 2 TB Memory
7 - 51 PCI Adapters



E870
8 - 80 Cores
256 GB - 16 TB Memory
8 - 96 PCI Adapters



E880
8 - 192 Cores
256 GB - 32 TB Memory
8 - 192 PCI Adapters

Introducing the IBM Power Systems LC Line

OpenPOWER servers that are different by design for cloud deployed Linux workloads

High Performance Computing

Compute
Intensive

Big Data

S812LC



- Storage rich single socket system for big data applications
- Memory Intensive workloads

NEW S822LC For Big Data

Announce and GA 9/8



- Ideal for storage-centric and high data through-put workloads
- Brings 2 POWER8 sockets for Big Data workloads
- Big data acceleration with work CAPI and GPUs

NEW S822LC For High Performance Computing

Announce 9/8, GA 9/26



- Introducing CPU-GPU NVLink, delivering 2.5X the bandwidth to GPUs accelerators
- POWER8 with NVIDIA NVLink
- Up to 4 integrated NVIDIA "Pascal" GPUs

NEW S821LC

Announce and GA 9/8



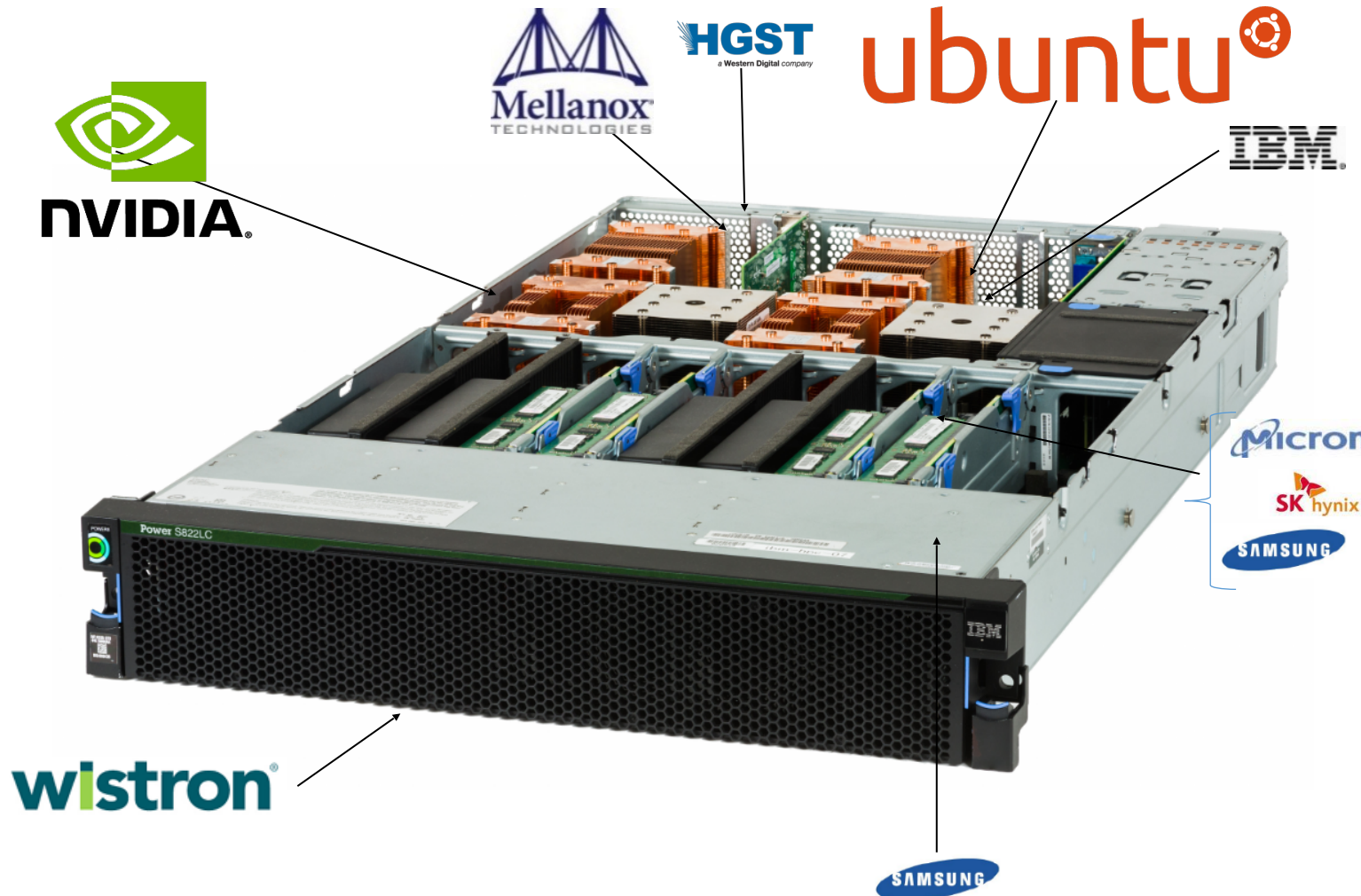
- 2 POWER8 sockets in a 1U form factor
- Ideal for environments requiring dense computing

S822LC for Commercial Computing



- 2X memory bandwidth of Intel x86 systems
- Memory Intensive workloads

OpenPOWER Innovation Pervasive in System Design



NVIDIA:

Tesla P100 GPU with NVLink

NVLink Interface

Ubuntu by Canonical:

Launch OS supporting NVLink and Page Migration Engine

Wistron: Platform co-design

Mellanox: InfiniBand/Ethernet Connectivity in and out of server

Samsung:

2.5" SSDs

HGST: Optional NVMe Adapters

Hynix, Samsung, Micron: DDR4

IBM: POWER8 CPU

IBM Power Systems Enterprise Cloud Offering (C-models)

Modernize your Power infrastructure for the Cloud, get access to IBM Cloud for free and cut your current operating costs by 50%

On-Premises Cloud

Transform traditional infrastructure with automation, self-service and elastic consumption models



- OpenStack-based Cloud Management: enabling DevOps to Full production
- Open source automation (installation and config. recipes)
- Flexible elastic private cloud capacity and consumption models
- Cross Data Center Inventory and Performance Monitoring via the IBM Cloud

Hybrid Infrastructure

Securely extend to Public Cloud with rapid access to compute services and API integration

- Manage VMs across on and off-premises clouds with a single pane of glass (e.g., VMware vRealize)
- Securely connect traditional workloads with cloud-native apps (Power & API Connect, BlueMix)
- Optional DR as a Service (GDR for Power)
- Free access and capacity flexibility with SoftLayer
 - Free SoftLayer starter pack (12 server months)
 - Flexibility to run capacity On Premises or in SoftLayer

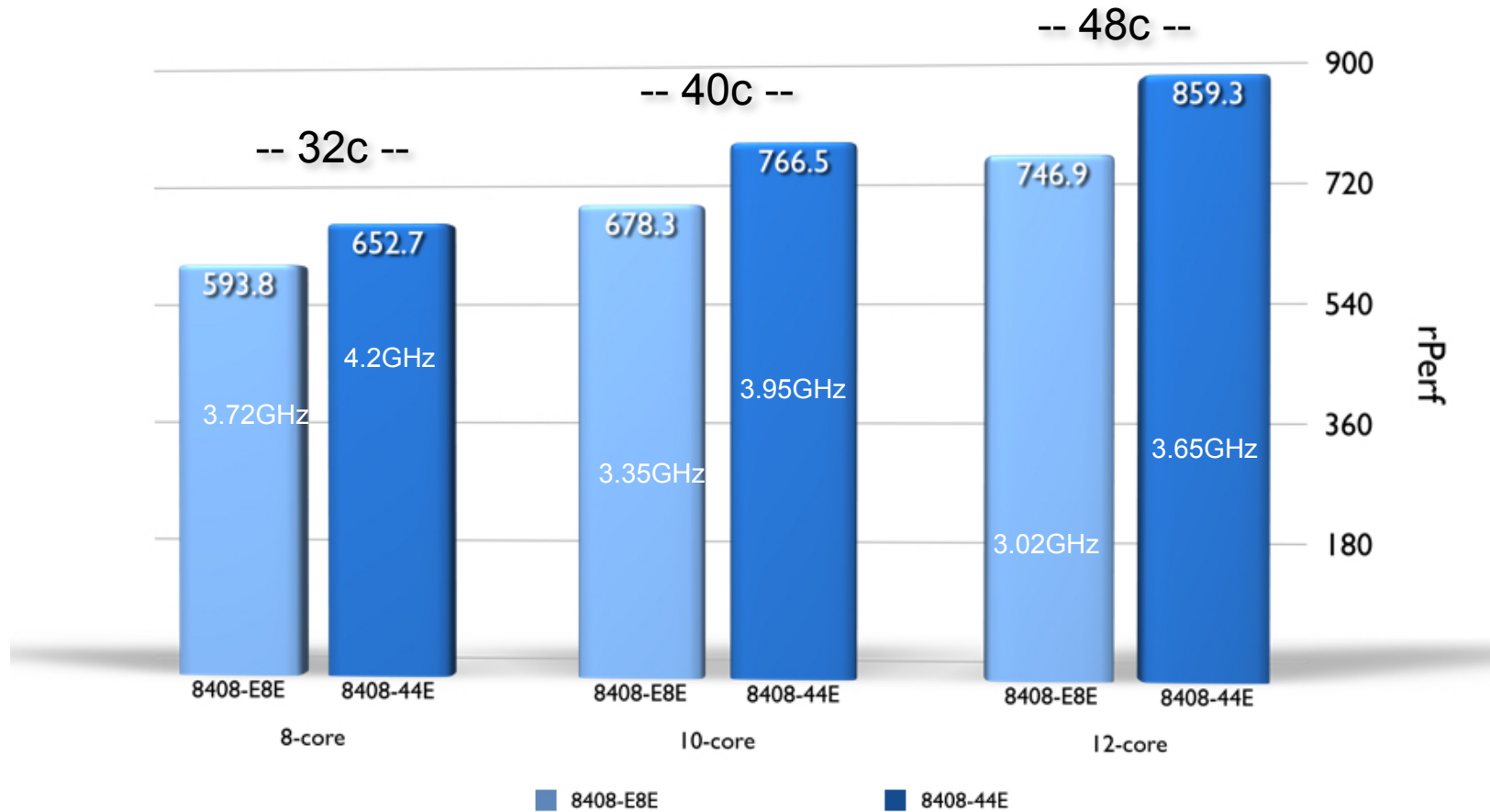
Built-in Cloud Deployment Services Options

- Design for Cloud Provisioning and Automation
- Build for Infrastructure as a Service
- Build for Cloud Capacity Pools across Data Centers
- Design for Hybrid Cloud with BlueMix
- Deliver with automation for DevOps
- Deliver with Database as a Service

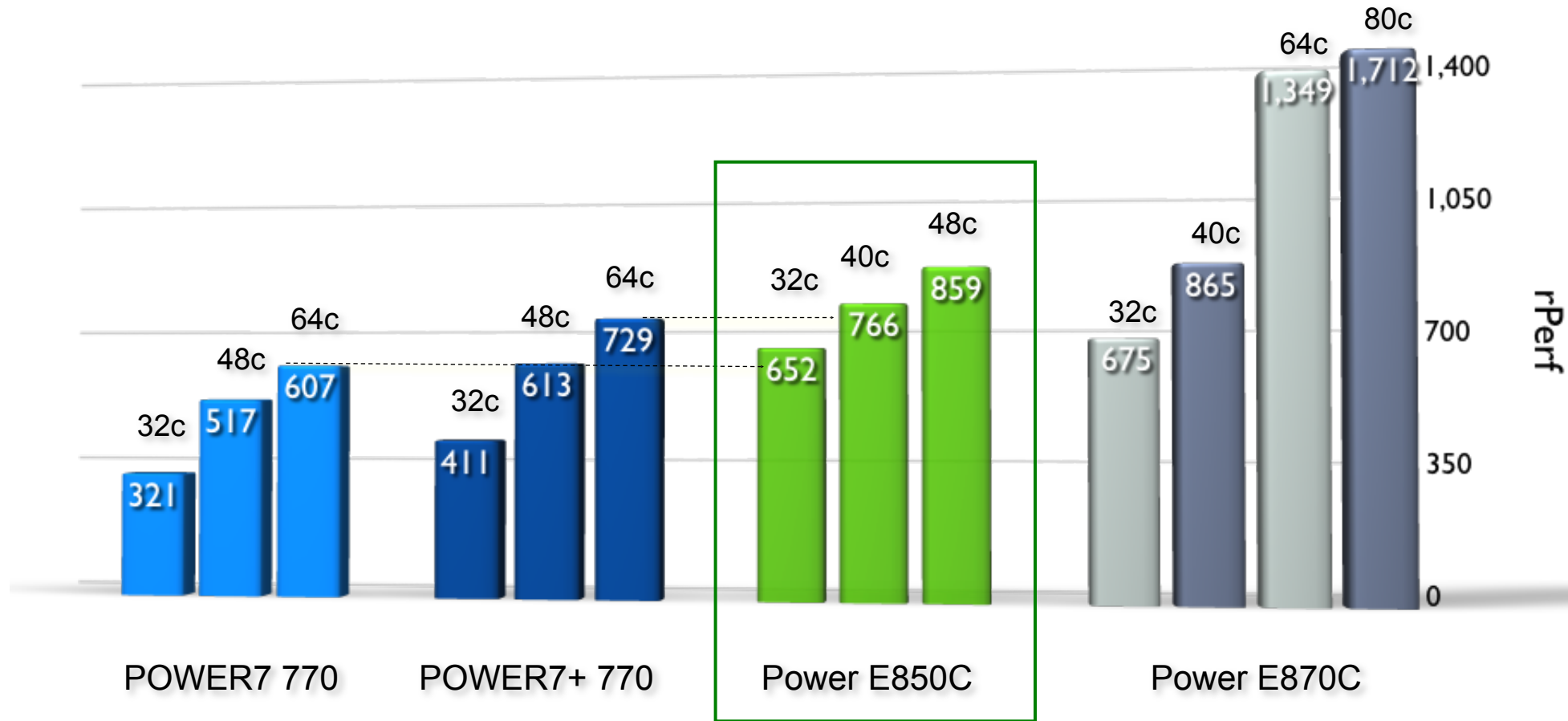
Note: Yellow text indicates new content in addition to packaging

Power E850C performance increase vs. Power E850

Nominal clockspeed increases up to 20% and system capacity increases up to 15%



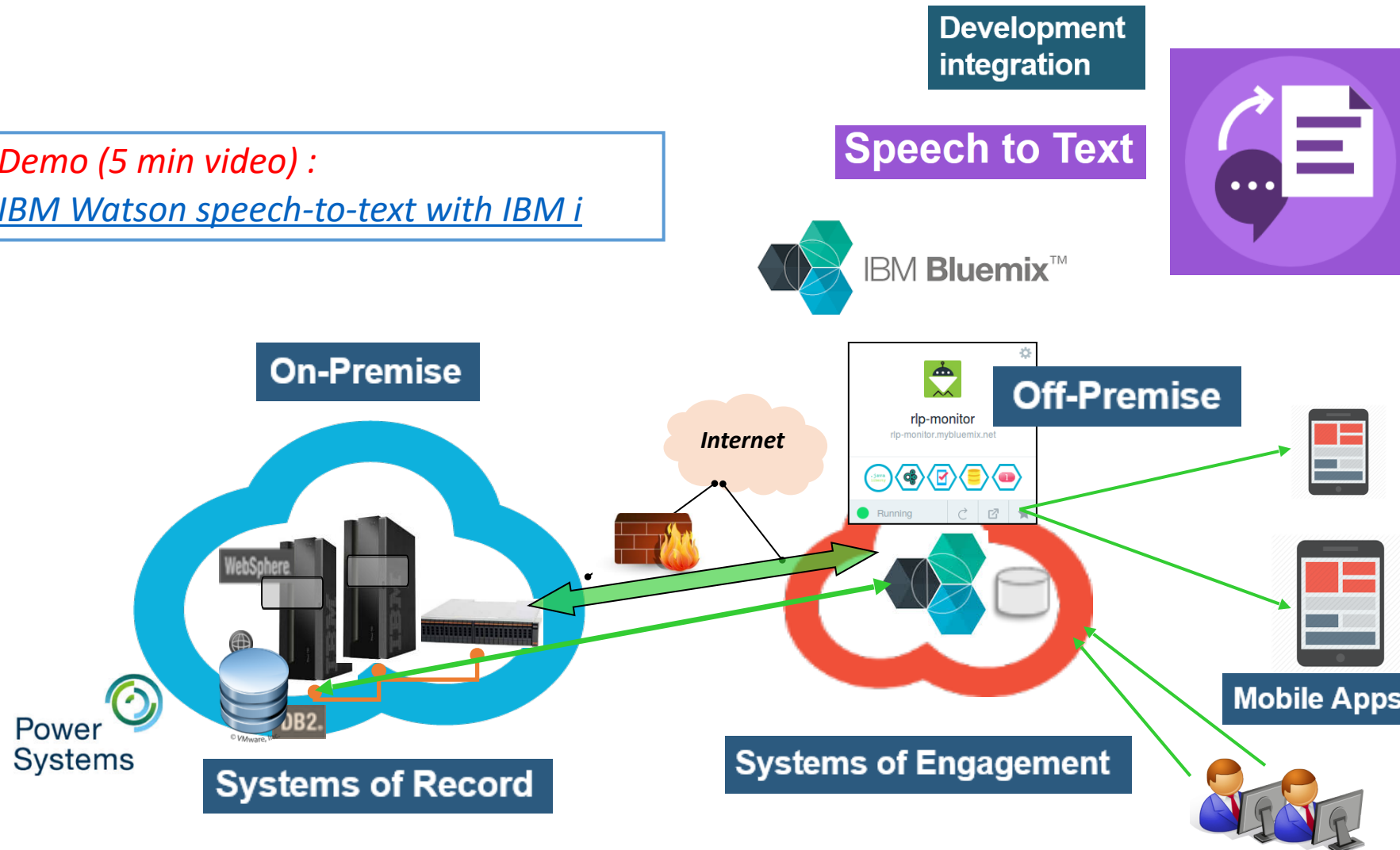
Power E850C performance vs. Power 770 (POWER7 & POWER7+)



Rapid Mobile Development



Demo (5 min video) :
[IBM Watson speech-to-text with IBM i](#)



High performance I/O for Data & Analytic Workloads

100 Gb Ethernet PCIe adapter

New 100Gb 2-port Ethernet (NIC & RoCE) adapter for ultra high bandwidth

- POWER8 servers with latest firmware



100 Gb InfiniBand (EDR) PCIe adapter

Expanded support of 1-port and 2-port InfiniBand adapter for high bandwidth needs

- Add E870C, E870, E880C, E880



PCIe3 NVMe Flash Adapter enhanced

SAP HANA Rapid Restart enabled. Faster restart of the partition or faster switch over to another partition on the same server

Support on more models -- Power E850C, E850 (in addition to existing S812L, S822L, S814, S822, S824, E870C, E880C, E870, E880)

Linux boot drive added



High performance I/O for Data & Analytic Workloads (cont.)

New enterprise nearline SAS disk enclosure – EXP12SX

2U drawer with 12 3.5-inch bays

Up to 92.6 TB in 2U space

12Gb SAS bandwidth design

7200 rpm disk drives

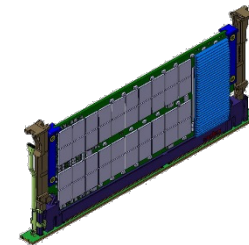
- 3.865 TB or 7.72 TB

Competitively priced



DDR4 memory refreshes DDR3 CDIMMs

- Up to **26% price improvement** on S812L, S822L, S824L, S814, S822, S824
- Up to **30% more energy efficient**



New EXP12SX and EXP24SX SAS Expansion Enclosures



EXP12SX -- Enterprise nearline disk for Big Data

3.5-inch (Large Form Factor) disk drives
7200 rpm 3.86-4.0 TB & 7.72-8.0 TB

POWER8 servers via existing PCIe3 SAS adapters

Compared to existing EXP24S

- 2x max capacity - Up to 92.6 TB
- Down to 1/5 cost per GB
- 2X bandwidth design -12Gb SAS



EXP24SX -- SSD/disk for higher performance

2.5-inch (Small Form Factor) drives
SSD, 15k rpm disk, & 10k rpm disk

POWER8 servers via existing PCIe3 SAS adapters

Compared to existing EXP24S

- **Lower list and maintenance price**
- Same 4k disk and 4k SSD
- **2X bandwidth design -12Gb SAS**

**Great option to hold SSD for AIX Flash Cache –
Accelerate those slow SANs**

Other Cost Reduction Enhancements

Reduced price of PCIe Gen3 Expansion Unit

For Scale-out and E850C servers (not E870C, E870, E880C, E880)

New 3 meter copper cables (instead of optical cables) can **reduce the price of an I/O drawer by up to 20%**

Same performance and RAS



Four high function PDUs

Reduce operational management costs

Individual receptacle are switchable remotely

Improved monitoring

50% more C19 receptacles to save rack space

12xC13 PDUs or 9xC19 PDUs



New, improved Enterprise CBU offering

Can buy 2nd server for HA/DR at substantial discount

Adding E870C and E870

More flexible - fewer pre-requisites



Other Cost Reduction Enhancements (cont.)

S814 4-core/6-core top mount RDX

For tower (not rack) config

Integrated, low-cost save/restore docking station – adds 5 cm (~ 2 in) to top of tower

Big cost savings compared to 7226-1U3 multimedia drawer with RDX

AIX, IBM i, Linux



S814 4-core/6-core disk for IBM i

With IBM i Express Edition on a new server, get up to four lower-price disk drives.

283GB 15k rpm – save up to \$125 each



S822 EasyScale and MSP enhancement

With Firmware 860 S822 can have up to **4 cores** per partition (2x previous max)

Same **P10** software tier



New PCIe Cryptographic 4767 Adapter

For financial institutions/applications

Great, industry leading physical security easy audits

2X performance of previous generation Crypto adapter

Binary compatible with existing AIX/IBM i applications

Adding Linux support SLES 11, RHEL 6.5

For POWER8 servers

AIX 6.1, 7.1, 7.2 IBM i 7.2, 7.3

FW 860

NOTE: withdrawing existing crypto cards – if have older servers or back level software, then buy soon



IBM Cloud Storage Solutions for i

- Announce: Oct 11, GA: Oct 28, initial offering English only
- An API that **enables object based storage to a cloud**
- **Automates** archiving and backup operations
- Initial Cloud providers are **SoftLayer** or MSPs supporting the SoftLayer interface
- Target customer market: IBM i customers with 1 or 2 cores and less than 1 terabyte of storage



TCP/IP

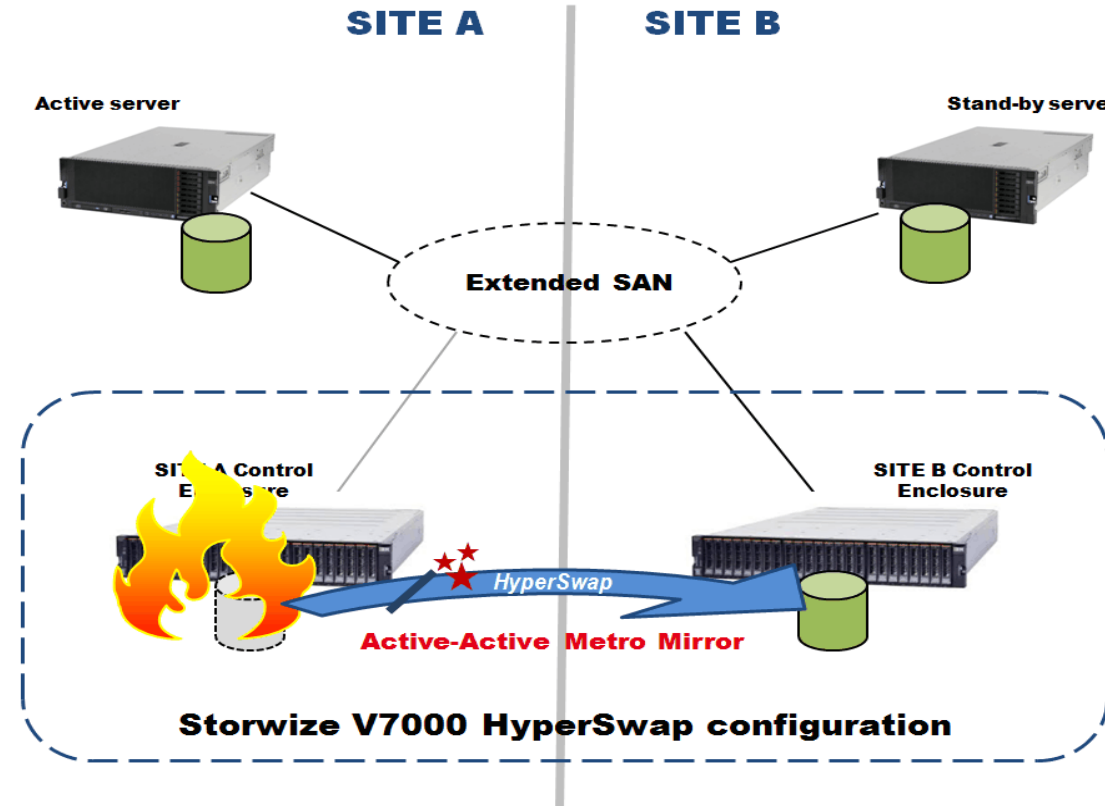
SoftLayer, Private Cloud

Turn-key BRMS automates and backup and restore operations and provides encryption over VPN

IBM PowerHA on i supports SVC and Storwize HyperSwap configurations



**HyperSwap
provides near zero
downtime for
storage system
outages**



IBM i 7.3 TR 1

IBM i 7.2 TR 5

IBM Storwize V7000,
Spectrum Virtualize,
HyperSwap, and VMware
Implementation
November 2015
SG24-8317-

- IBM i already has support for HyperSwap at a **Full System level**
- **Now** extending support to **include IASP support**, including FlashCopy & LUN level switching
- Note: 3 site support not available at this time
- More details: <https://www.ibm.com/developerworks/ibmi/ha>



ithankyou