

# Enterprise Cloud System

*SHARE Pittsburgh 2014*

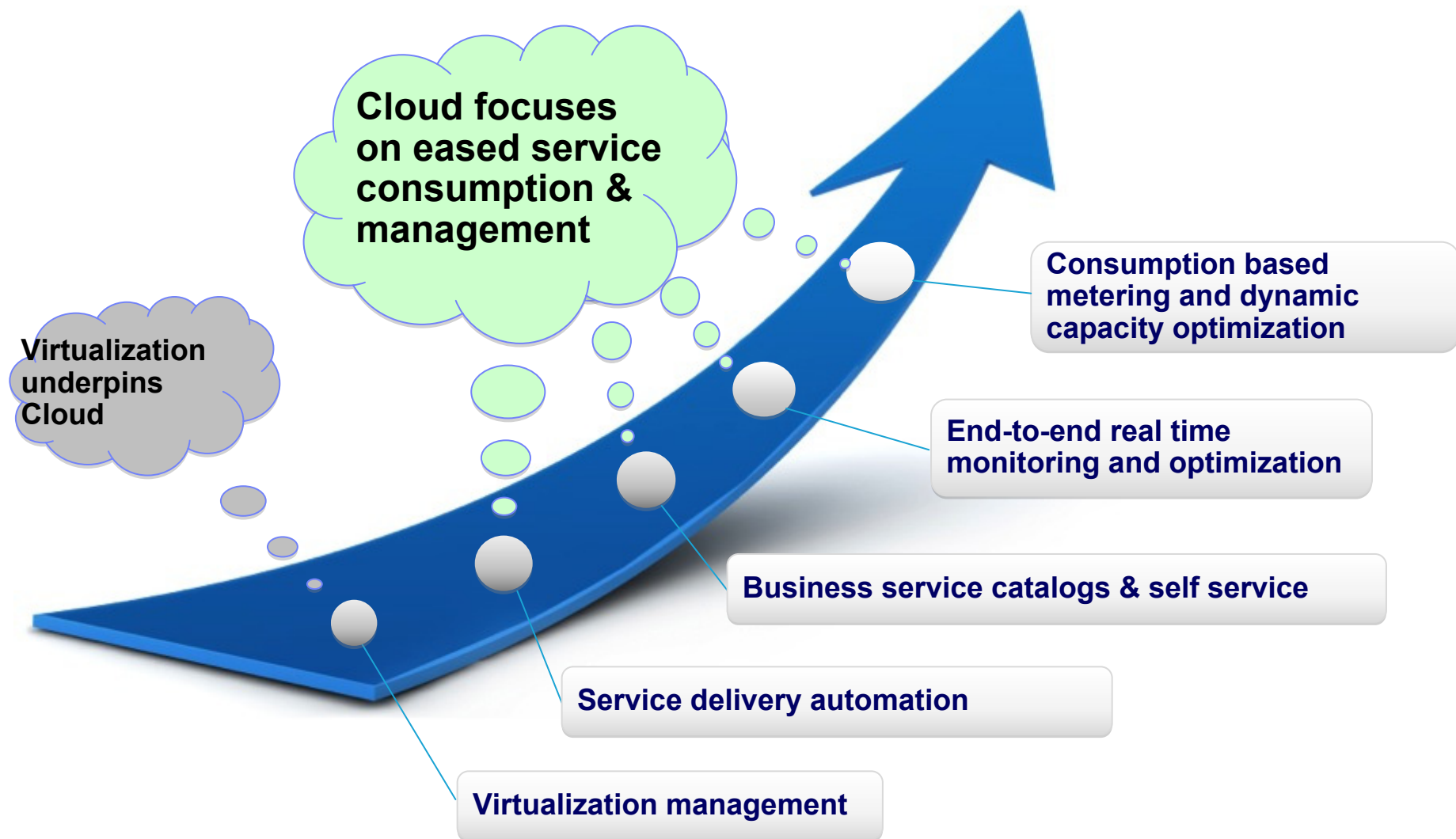
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Live Twitter Chat #MainframeDebate August 12<sup>th</sup> 11am EST



# Organizations are now moving **beyond virtualization** to higher value stages of Cloud Computing



# Clients are deploying various use cases

Next Gen Hybrid Workloads			Hybrid Cloud Brokerage & Management	Hybrid Infrastructure Scale Out	
Independent Workloads	SOE - SOR Integration	Portability & Optimization		Capacity Access	Disaster Recovery
<p>Choose private, public or hybrid cloud based on independent workload requirements</p>	<p>Systems of Record on Private and Systems of Engagement on Public</p>	<p>Application and/or data are portable and can go to and from public and private for improved optimization</p>	<p>Planned or Policy based Management and sourcing across multiple environments (infrastructure, platform &amp; app)</p>	<p>Opportunistic use of public cloud as additional resource for large jobs (e.g., HPC, Big Data, Batch)</p>	<p>Setup and make available a parallel environment off-premises</p>



## 2<sup>nd</sup> wave of corporate applications moving to the Cloud

### Simple IT-aaS

### Mission Critical-aaS



Reduce cost & minimize Risk

Add Business Value - Quickly

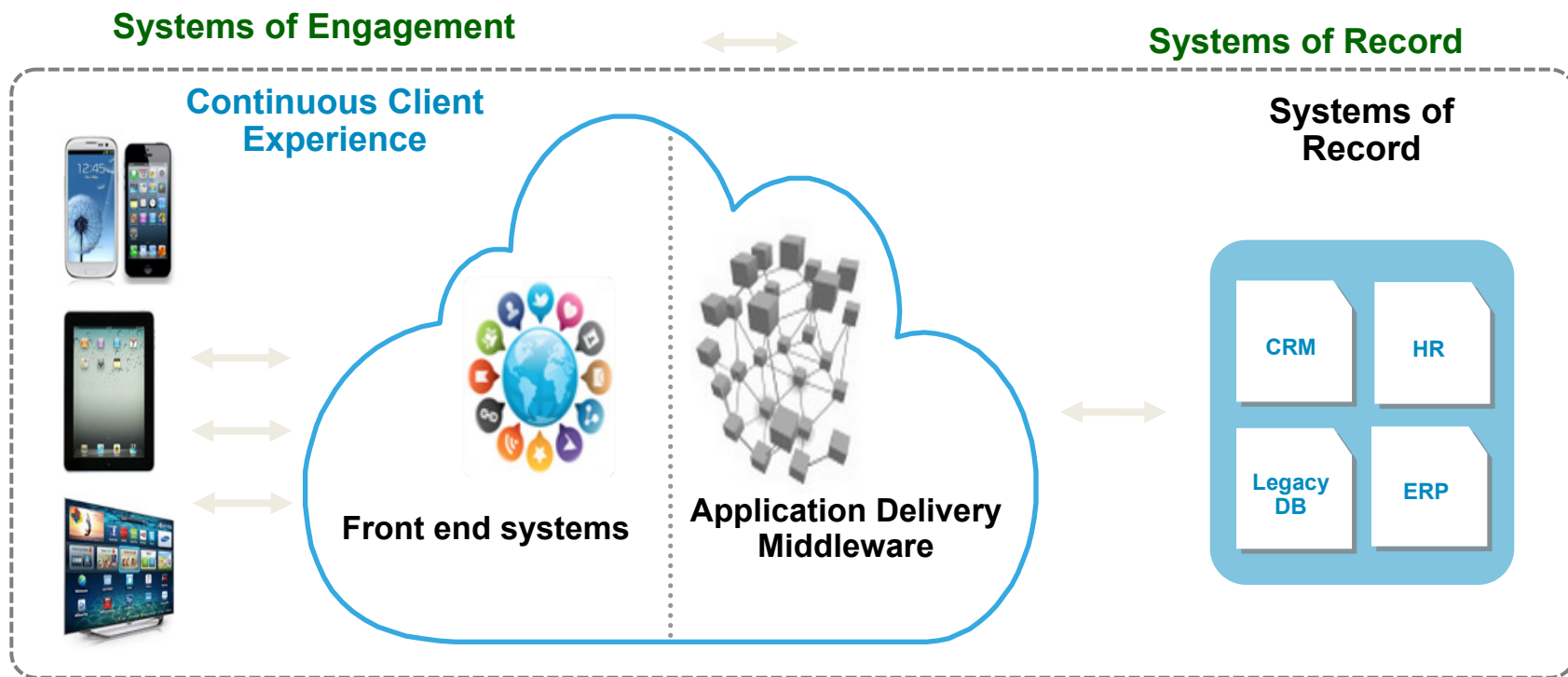
### 1<sup>st</sup> Wave Cloud Workloads

- Simple services such as:
  - Email
  - Virtual Desktop
  - File storage
- Non-mission critical workloads
- Test and Dev - DevOps

### 2<sup>nd</sup> Wave Cloud Workloads

- Data warehouse
- Line of business applications
- Enterprise grade databases
- Middleware
- Industry regulated workloads such as PCI

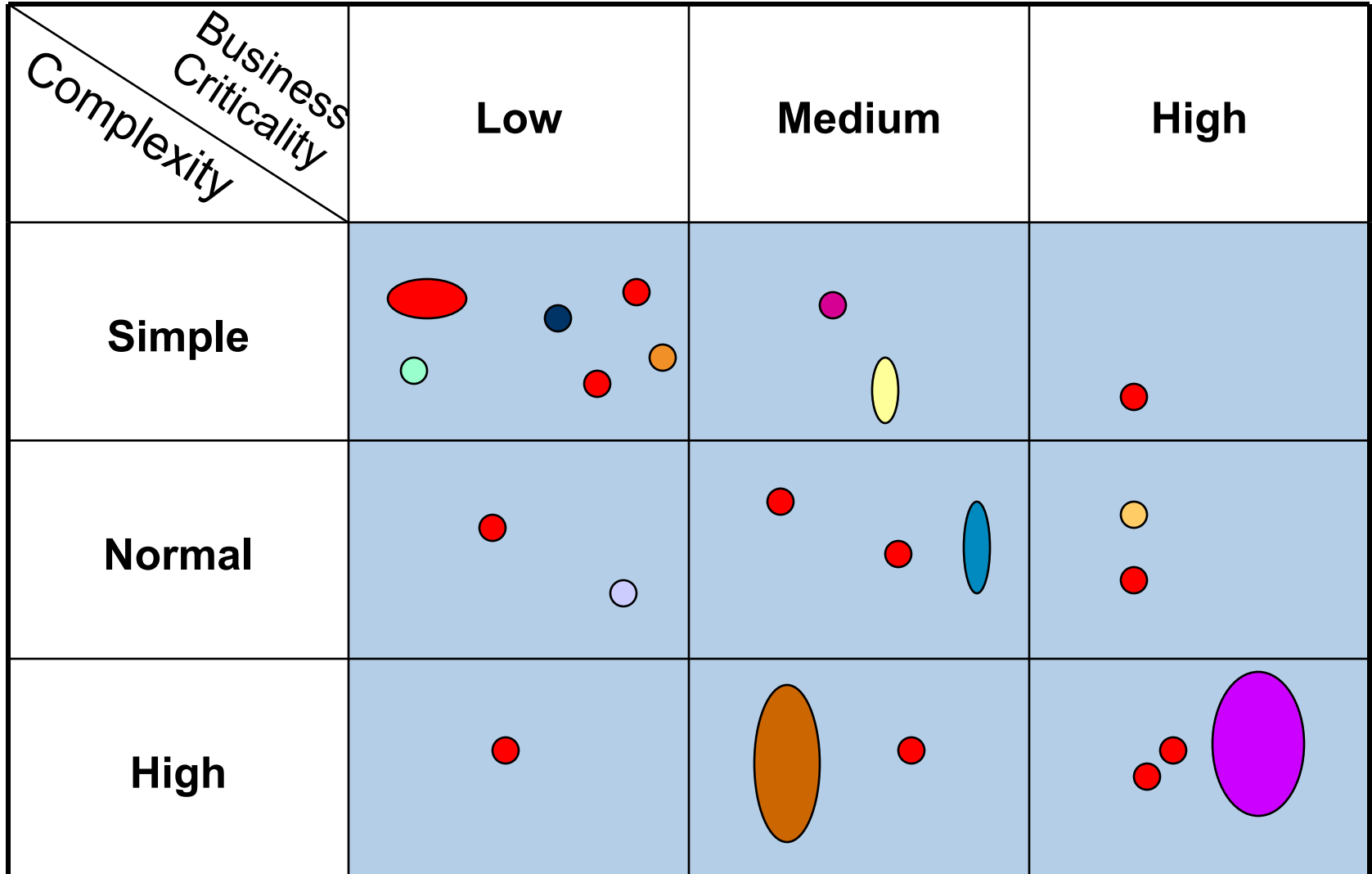
# Evolution of cloud workloads



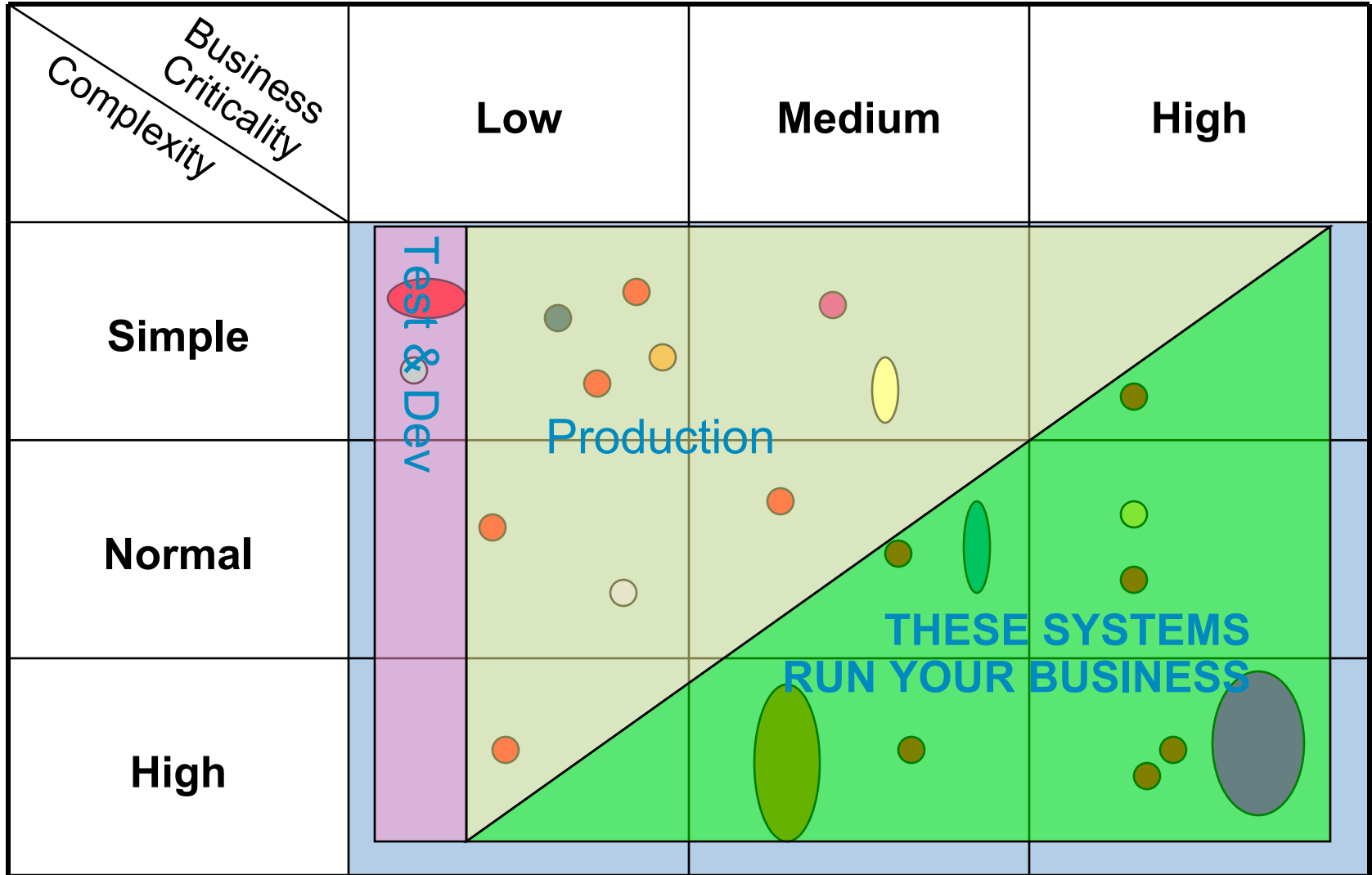
Criticality to the Client

Cloud Adoption

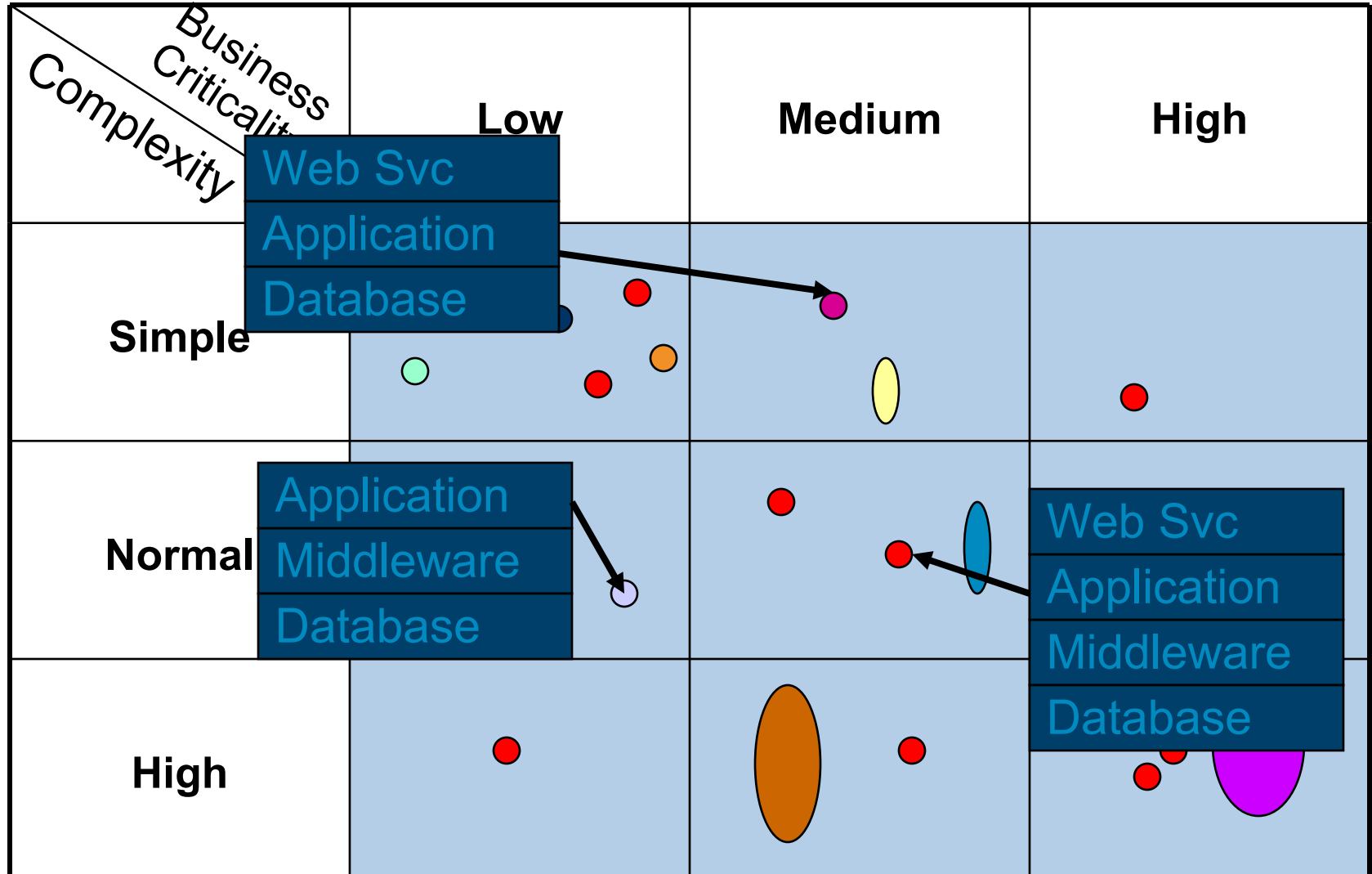
# On-premise Workload Map



# The evolution from on-premise to the Cloud

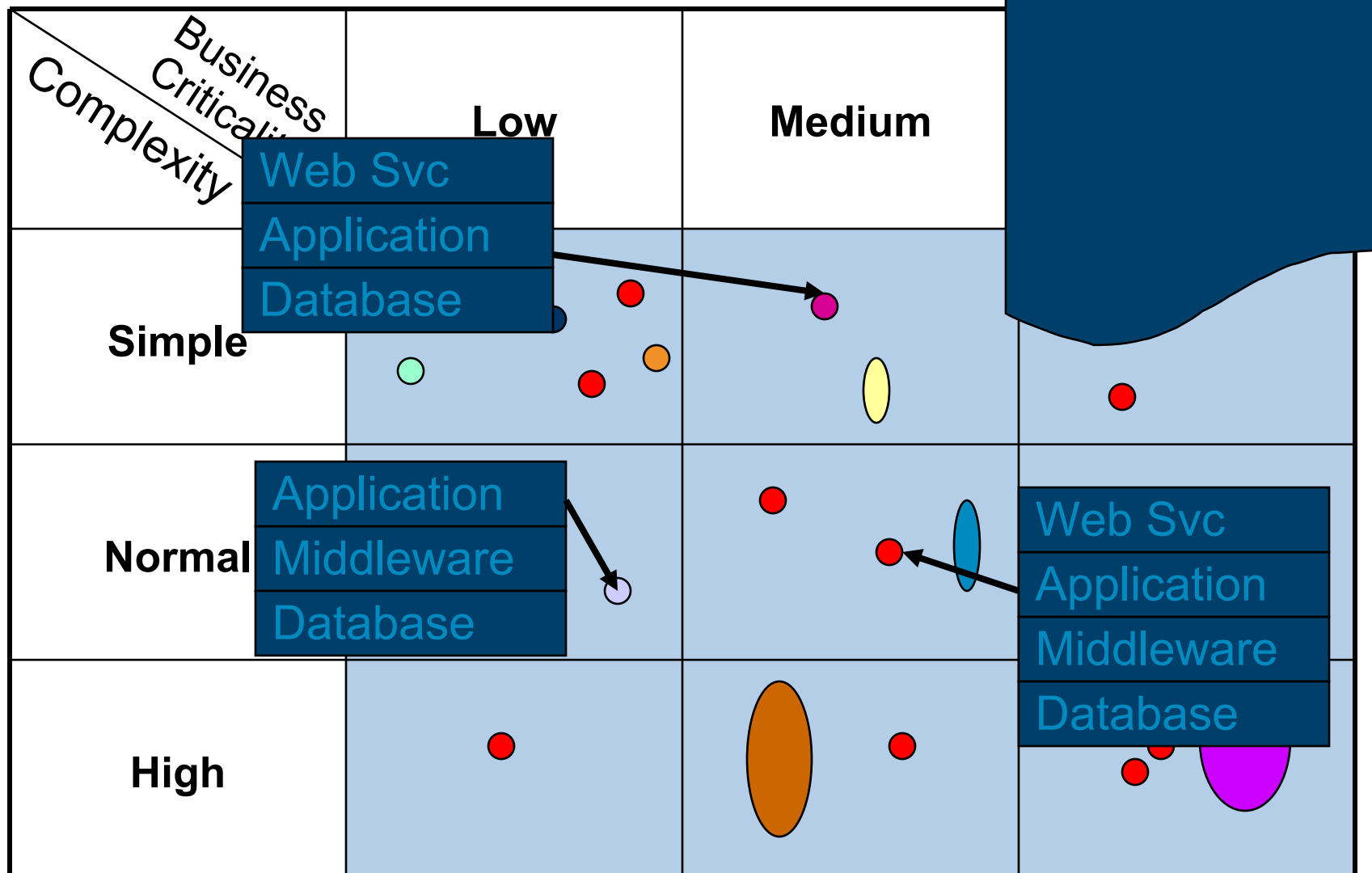


# Workload Decomposition

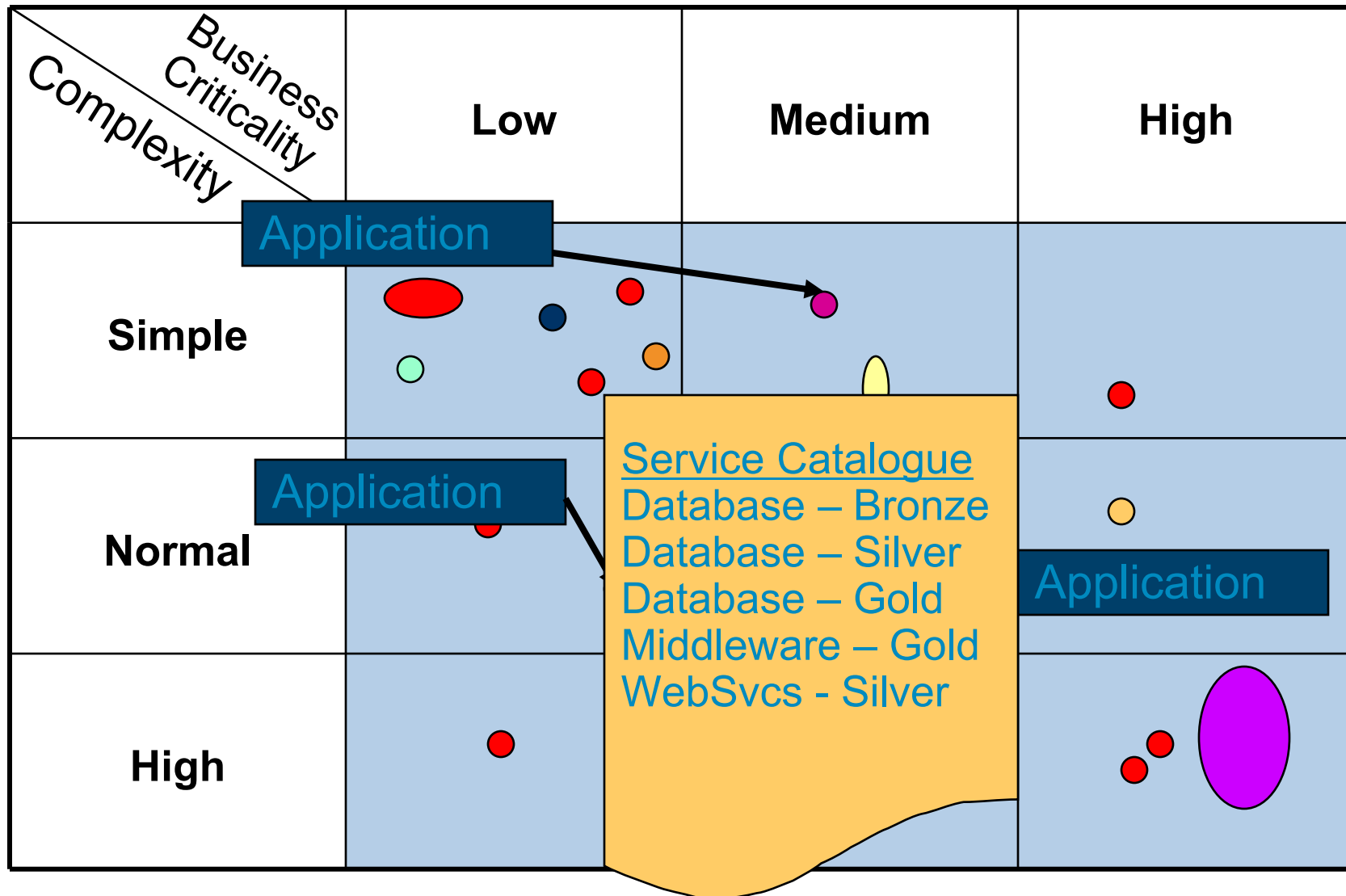




# Determine the horizontal layers of your architecture



# Define the Service Catalogue for the horizontal layer components



# How to make your Cloud journey

## Car

- Good over short to medium distances
- Able to carry up to 7 passengers
- Can carry up to 1000KG with trailer
- Costs depend on journey length
- Flexible depart/arrival
- Can't use when under influence
- Parking can be expensive
- Traffic



## Plane

- Good over long distances
- Able to carry up to 400 passengers
- Upto 50Kg of luggage is viable
- Expensive
- Limited depart/arrival points
- Check-in security

## Train

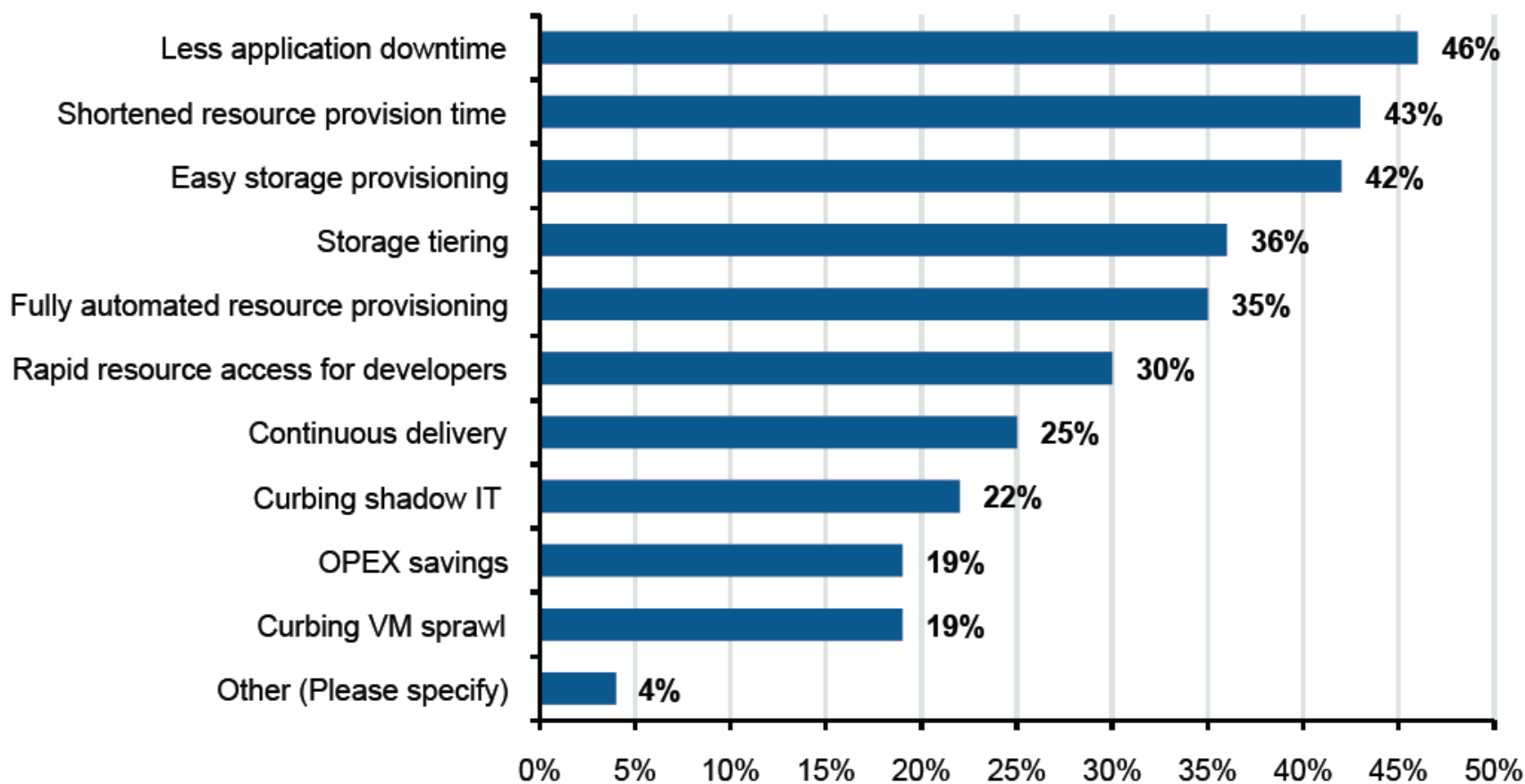
- Good over medium to long distances
- Able to carry up to 600 passengers
- Upto 50Kg of luggage is viable
- Costs depend on journey length
- Fixed depart/arrival points
- Timetable based journey times

## Bike

- Good over short distances
- Able to carry up to 2 passengers
- Cost per journey is negligible
- Flexible depart/arrival
- Health benefits
- Weather dependent
- Limited ability to carry luggage

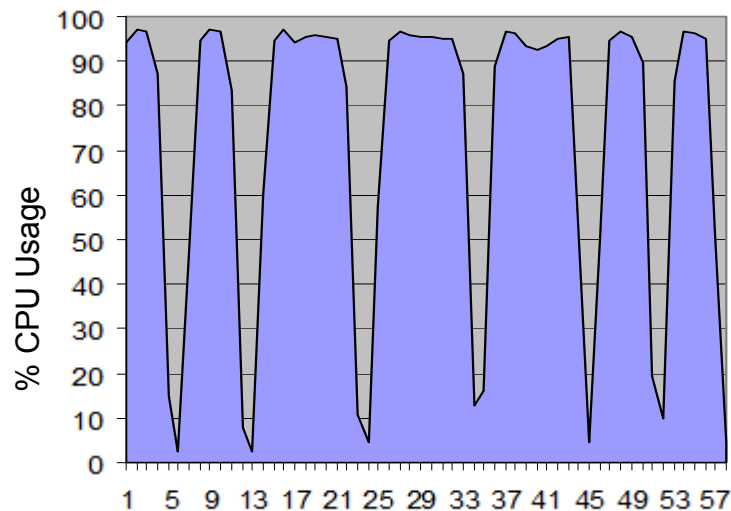
## Achieving cloud goals require improvements in workload monitoring, management and automation

What were the key strategic goals of your private cloud?



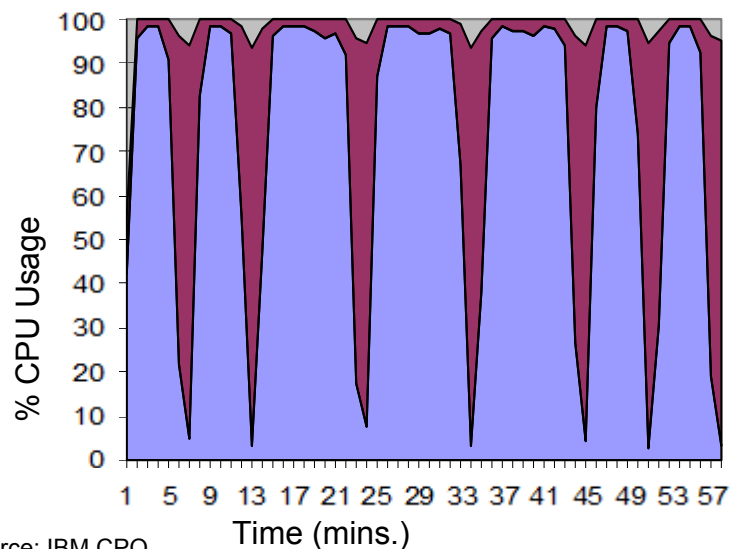
n = 2130 Respondents (EMA, IDC 2012 converged cloud study)

## System z demonstrates perfect workload management...



Demand curve for 10 high priority workloads running in 1 z/VM LPAR (PR/SM weight = 99)

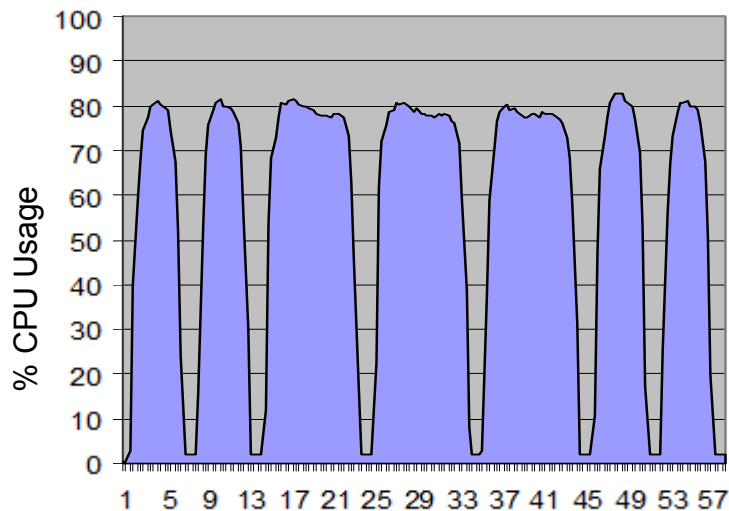
- **Workloads consume 72% of available CPU resources**



Demand curve when 14 low priority (PR/SM weight = 1) workloads are added in a second z/VM LPAR

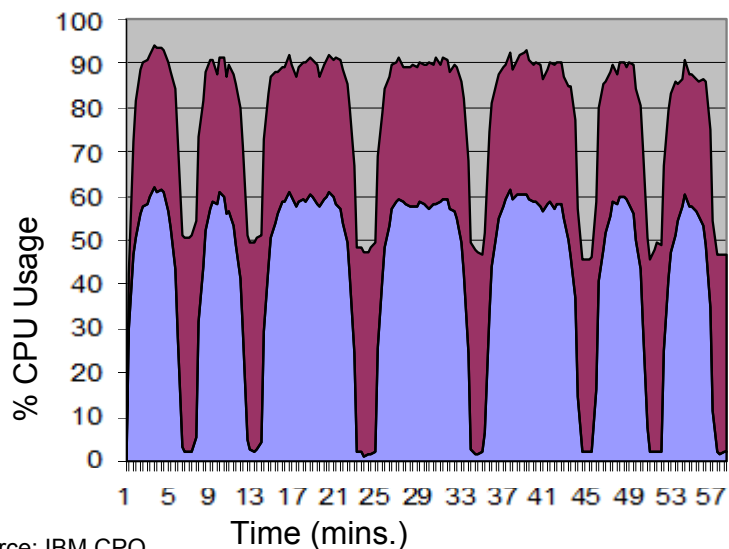
- **High priority workload throughput is maintained**
- **No response time degradation**
- **All but 2% of available CPU resources is used**

## ...Unlike this common Intel hypervisor which demonstrates imperfect workload management



Demand curve for 10 high priority workloads running on a common Intel hypervisor (high share)

- **Workloads consume 58% of available CPU resources**



Demand curve when 14 low priority (low share) workloads are added

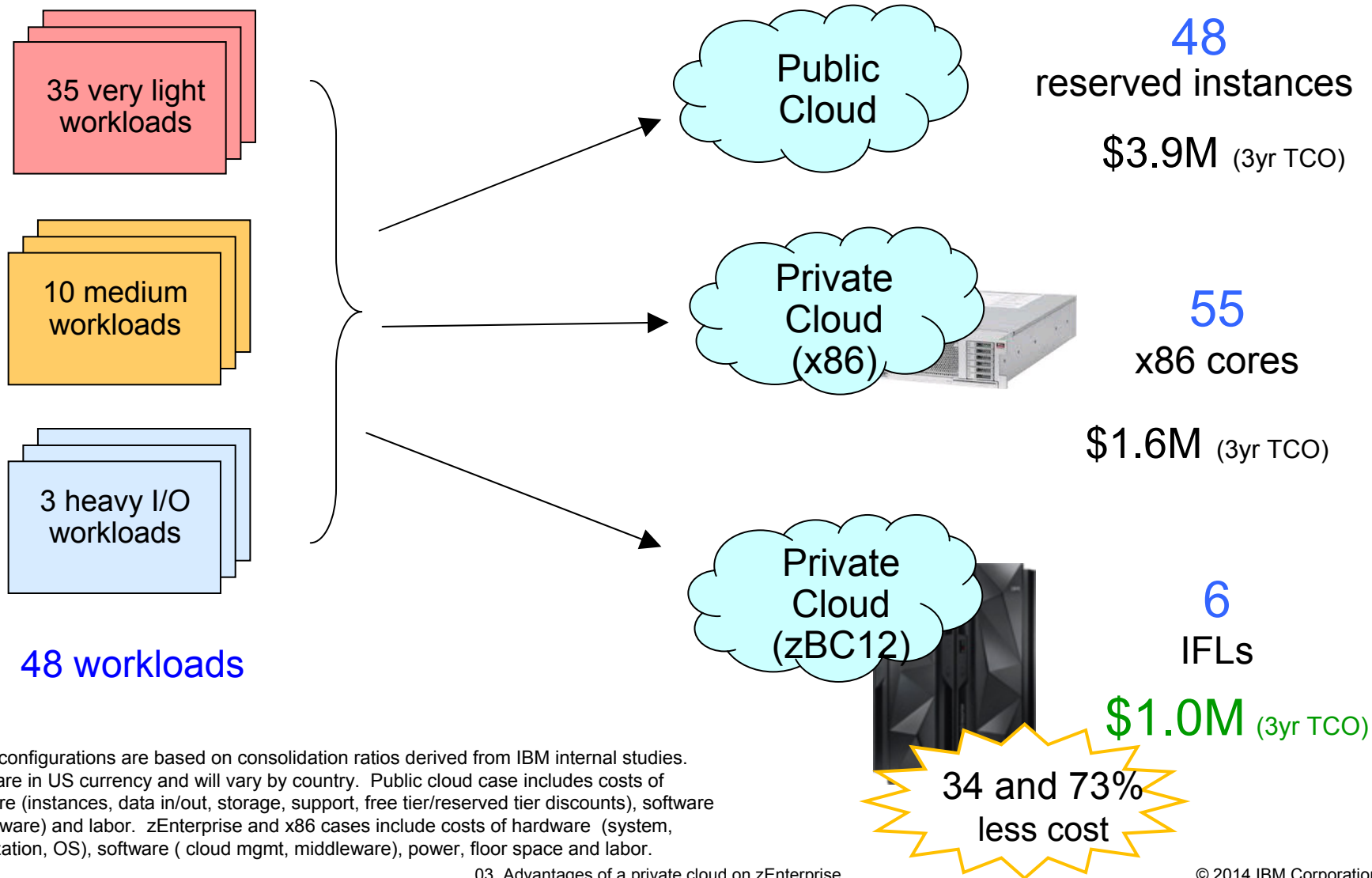
- **High priority workload throughput drops 31%**
- **Response time degrades 45%**
- **22% of available CPU resources is unused**

# The TCO discussion

*Dare to be Different*



# Cloud on System z yields the Lowest Cost

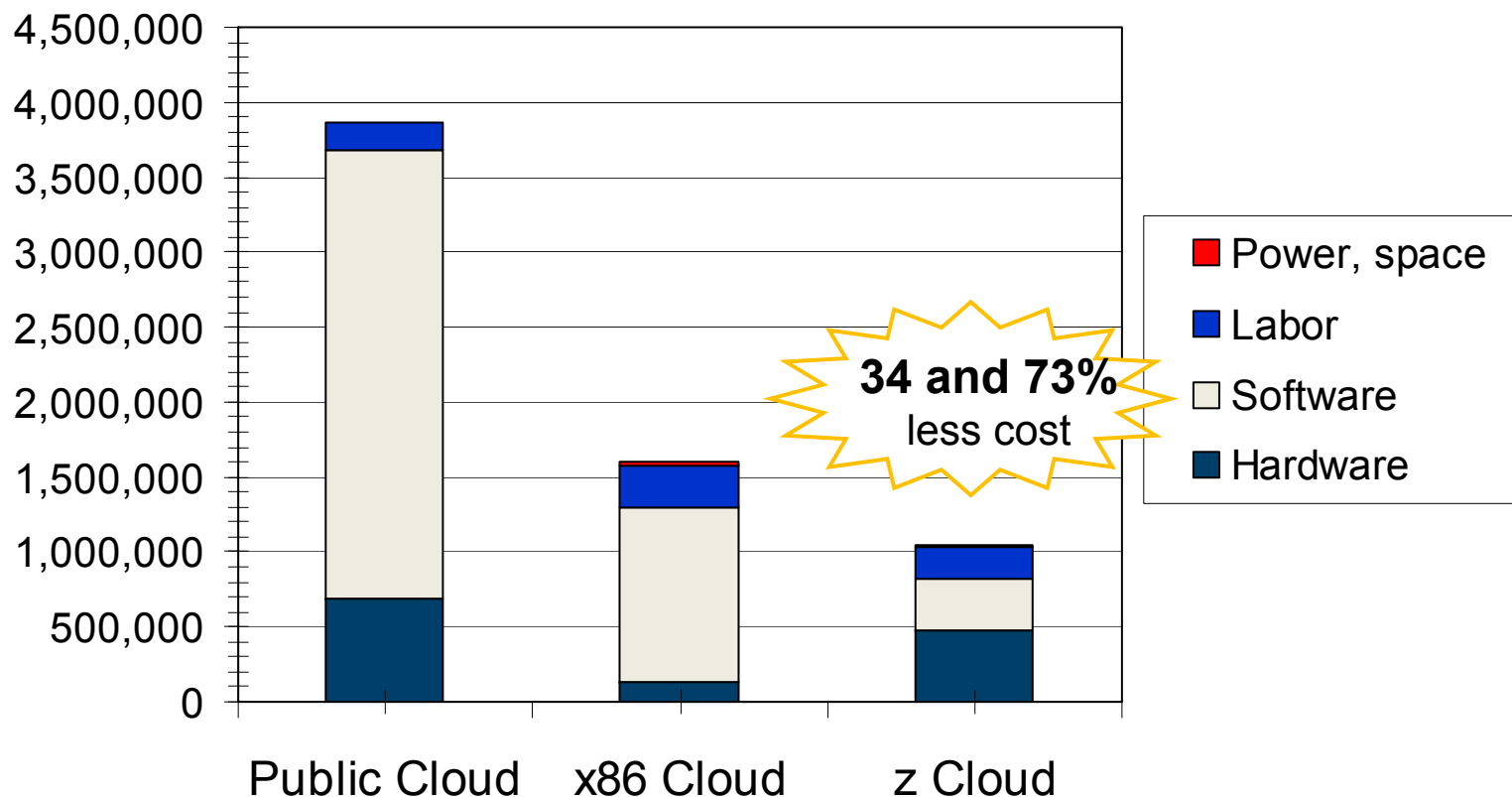


Server configurations are based on consolidation ratios derived from IBM internal studies. Prices are in US currency and will vary by country. Public cloud case includes costs of hardware (instances, data in/out, storage, support, free tier/reserved tier discounts), software (middleware) and labor. zEnterprise and x86 cases include costs of hardware (system, virtualization, OS), software (cloud mgmt, middleware), power, floor space and labor.



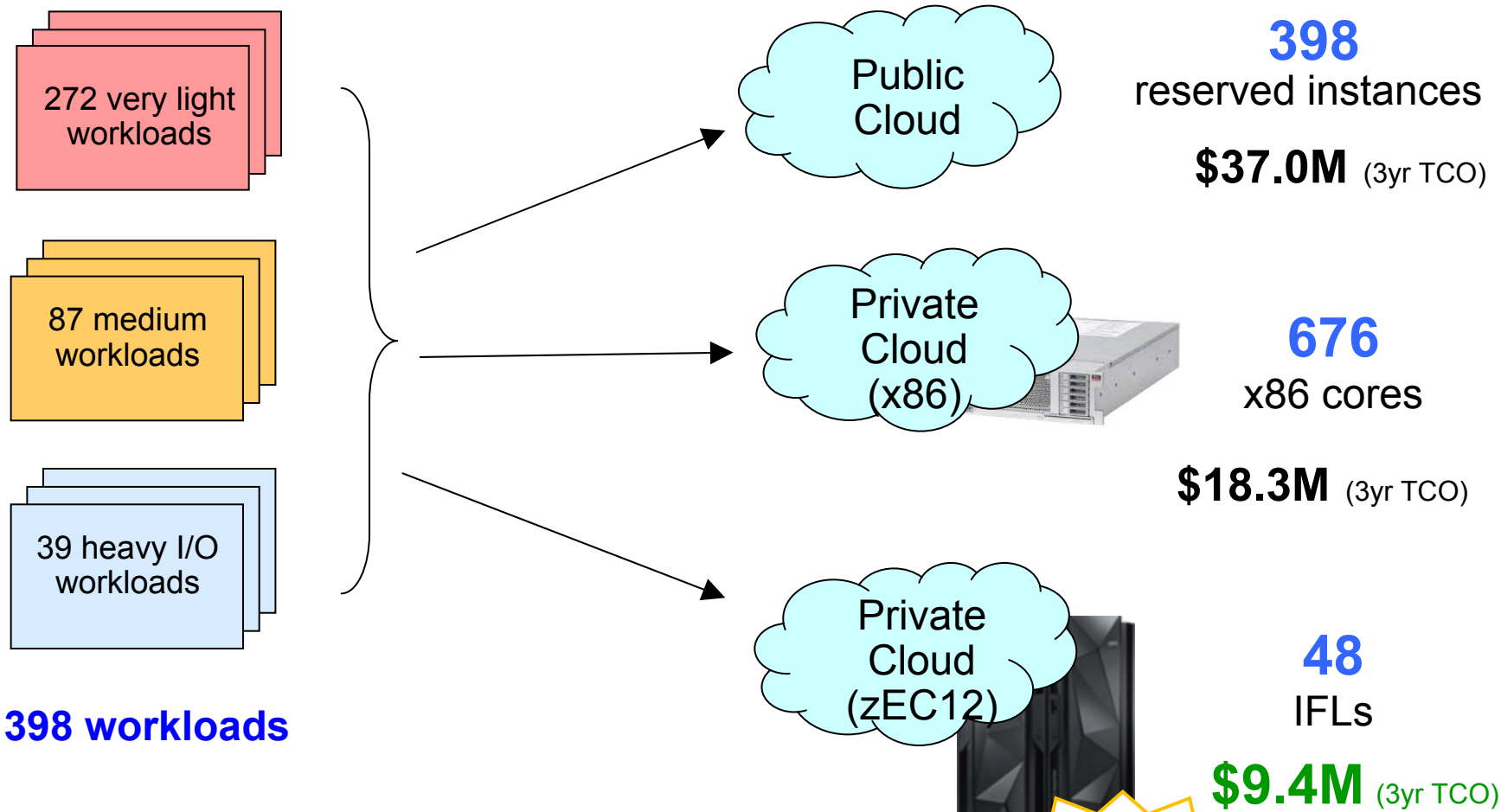
# Reduce costs with a System z private cloud

## Case Study: 48 Workloads



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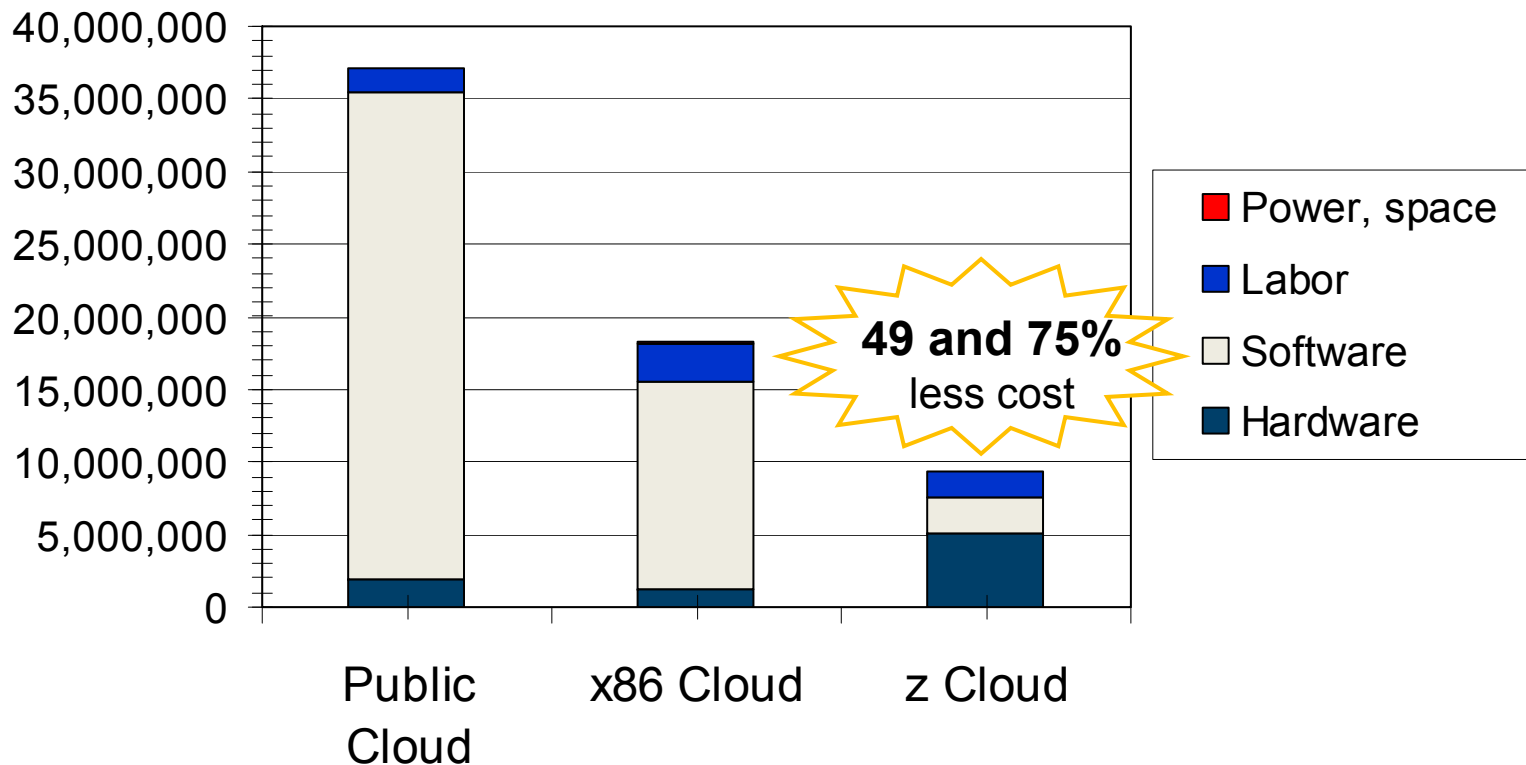
# A private cloud on System z yields the lowest costs



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# Reduce costs with a System z private cloud

## Case Study: 398 Workloads



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## Recommended Workloads for Cloud on System z\*

- **Data services:** Cognos, SPSS, DB2, InfoSphere, Informix®, Oracle Database
- **Business applications:** WebSphere Application Server, WebSphere Process Server, WebSphere Commerce, ...
- **Development & test:** WebSphere/Java applications – Rational Asset Manager, Build Forge®, ClearCase®, Quality Manager
- **Email & collaboration:** Lotus Domino®, Lotus Collaboration (Sametime, Connections, Quickr™, Forms) WebSphere Portal, ...
- **Enterprise Content Management:** FileNet® Content Manager, Content Manager, Content Manager On Demand
- **Business Process Management:** Business Process Manager, WebSphere Business Monitor, FileNet Business Process Manager, WebSphere Operational Decision Management, ...
- **Infrastructure services:** WebSphere MQSeries®, WebSphere Message Broker, WebSphere Enterprise Service Bus, DB2 Connect™, FTP, NFS, DNS,, ...

# IBM Enterprise Cloud System

*Dare to be Different*



# Dare To Be Different

## with the IBM Enterprise Cloud System



### Speed

- Integrated and pre-tested system deployed and uprunning in hours
- Worlds fastest commercially available chip at 5.5Ghz
- Unified management for rapid provisioning and orchestration.
- In-box capacity growth as opposed to 'plug-in another Blade'
- No new skills required to deploy – Linux is Linux is Linux

### Availability

- Differentiated qualities of service for enterprise-class cloud workload support.
- Highest levels of availability, 99.99+%.
- Less than 1% of security incursions seen on competitive platforms.
- Mean-Time-Between Failure measured in decades
- Silicon-to-Cloud tooling all from one vendor reduces support complexity

### Economics

- Up to 75% lower total cost of ownership than leading public cloud providers
- Up to 70% lower software license costs.
- Up to 80% less energy consumption.
- Up to 90% less floor space.
- Lower administration costs at scale with leading VM per administrator ratios.
- Flexible Pay-As-You-Go pricing

# IBM Enterprise Cloud System



## Standard Linux Environment

- Red Hat/SUSE
- 3000+ Applications



## Fully Automated Cloud Management Suite



## Hypervisor and Virtualization Management



## Utility Pricing and MSP Flexible Financing



## Trusted, 24/7 IBM Support



## Award Winning Hardware Design



- Factory Integrated
- Delivered in 30-45 Days
- Production Ready in Hours

- Scale up to 6,000 VMs
- 99.99%+ Availability
- Proven Security

# IBM Enterprise Cloud System

**Dare to be Different:** Trusted Cloud, Simply Delivered



The IBM Enterprise Cloud System is a different kind of system for a different kind of IT.

Leverage an OpenStack based enterprise-grade cloud infrastructure to deploy new systems of engagement, analytic capabilities, and realize the economics of cloud with a converged cloud solution, ready to handle the highest qualities of service levels at half of the cloud of large public cloud providers.

## Ensure higher SLAs with 99.99+% Availability

As low as **\$2.<sup>20</sup>/day** per virtual server<sup>1</sup>

Up to **6000 virtual servers** in a single footprint (EC12)

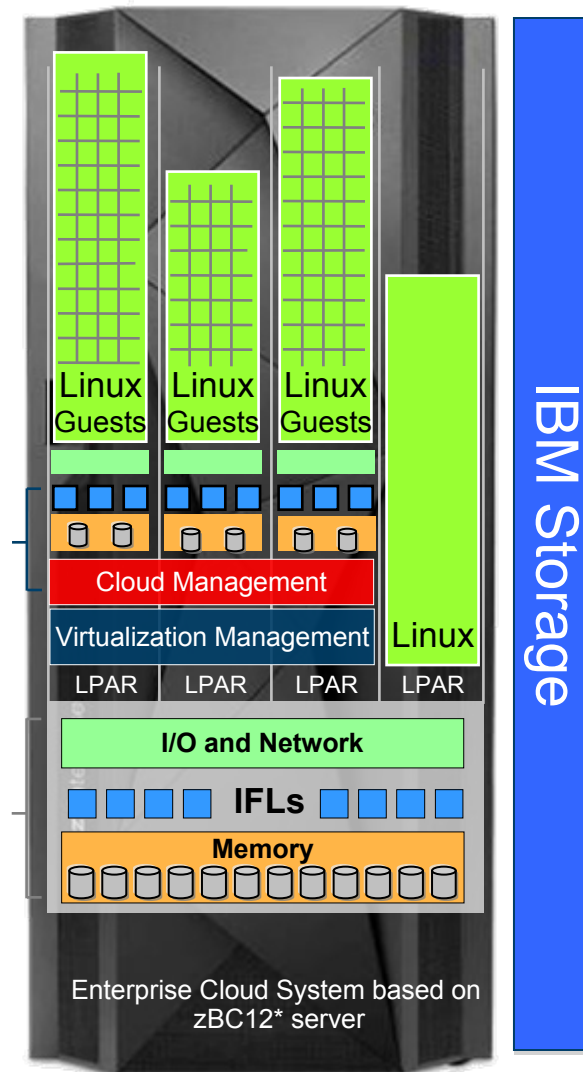
Save up to **50%** on TCO over 5 years<sup>2</sup>

**Secure isolation** of logical partitions with highest level of security certification

Deploy up to **40 virtual servers** per core

More than **3,000 ISV applications** supported

**CRN Most Innovative Cloud Solution Winner – zBC12**  
**Linux Journal Winner, Best Server Linux Vendor- IBM**



<sup>1</sup>IBM calculations of zEnterprise limits across maximum zBC12 configuration. Results may vary. 3-Year cost for hardware, hardware maintenance, and z/VM. Does not include IBM Wave for z/VM

<sup>2</sup>Based on preliminary measurements and projections comparing Oracle DB on x86 2 chip 8 core 2.13GHz blades vs. zBC12 and ELS solution edition pricing. Subject to change and results may vary based on numerous factors.



# Thank You!

