



# z Systems in the 3<sup>rd</sup> Platform Era

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Group Vice President and General Manager

March 2015

# Market Forces

2014-2018

## 2018 Devices:



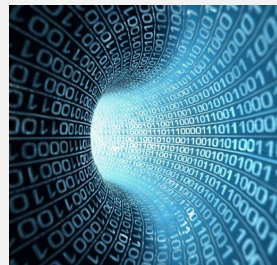
- 2x Growth
- 40 Billion
- 5.0/Person

## 2018 Mobile Users:



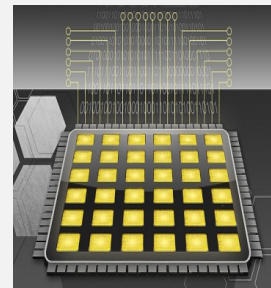
- 50% Growth
- 3.8 Billion
- 50% Penetration

## 2018 Data:



- 4x Growth
- 24 Zetabytes
- 6.75 TBs/  
Person/Day

## 2018 Datacenter Cores:



- 2x Growth
- 77 Billion
- 10/Person

**... yesterday's infrastructure won't cut it...**

# Imagine an Economy Where...



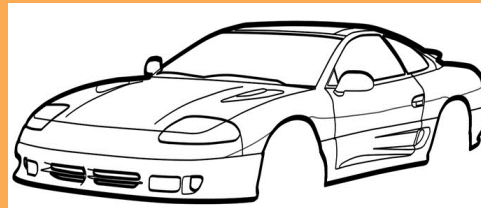
70%

The success rate of new product introductions is improved from today by 70%

75% of all same day consumer deliveries are fulfilled by demand-based, socially-linked delivery networks



Autonomous vehicles displace 2<sup>nd</sup> /3<sup>rd</sup> car ownership, decreasing congestion by 10% in served cities



25% of CPG retail shopping is conducted in omni-channel commerce marketplaces



# In this Digital Economy...

Participants (government, businesses, consumers) adapt to disruptive changes in their business models and ecosystems by leveraging digital technologies to:

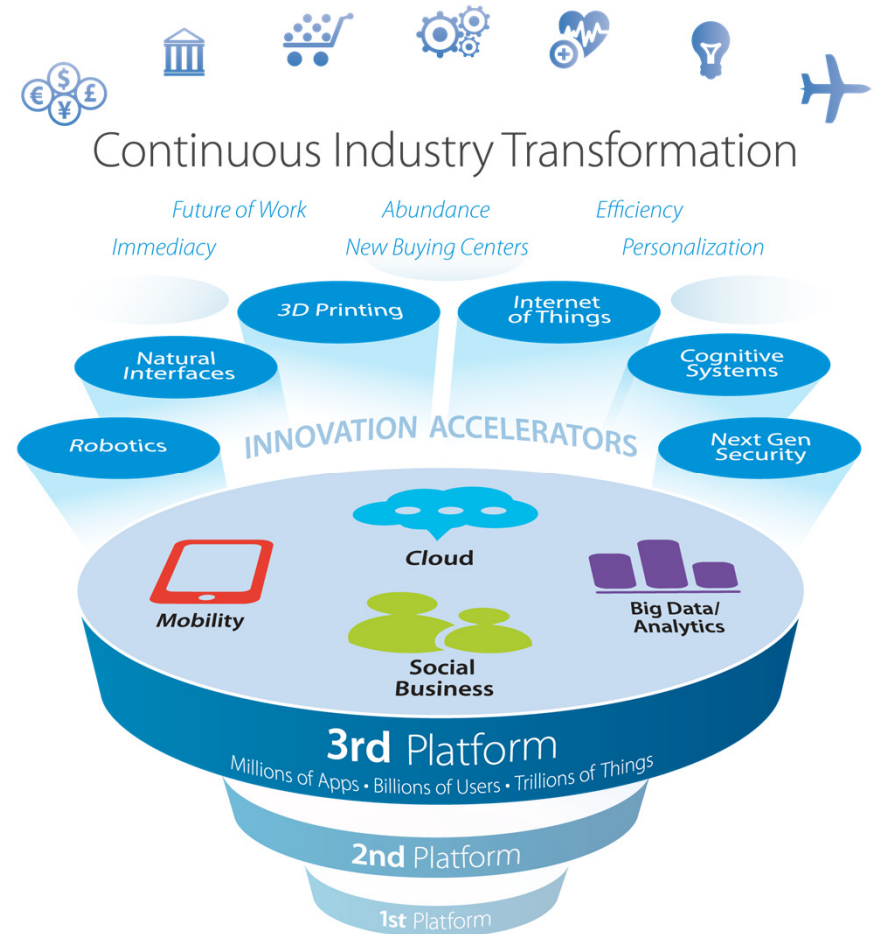
- ✓ Create new business models, products and services that seamlessly blend digital and physical
- ✓ Create new experiences that blend business and customer domains
- ✓ Improve operational efficiencies
- ✓ Improve organizational performance

# The 3rd Platform is a Business Platform

The 3<sup>rd</sup> Platform allows businesses to:

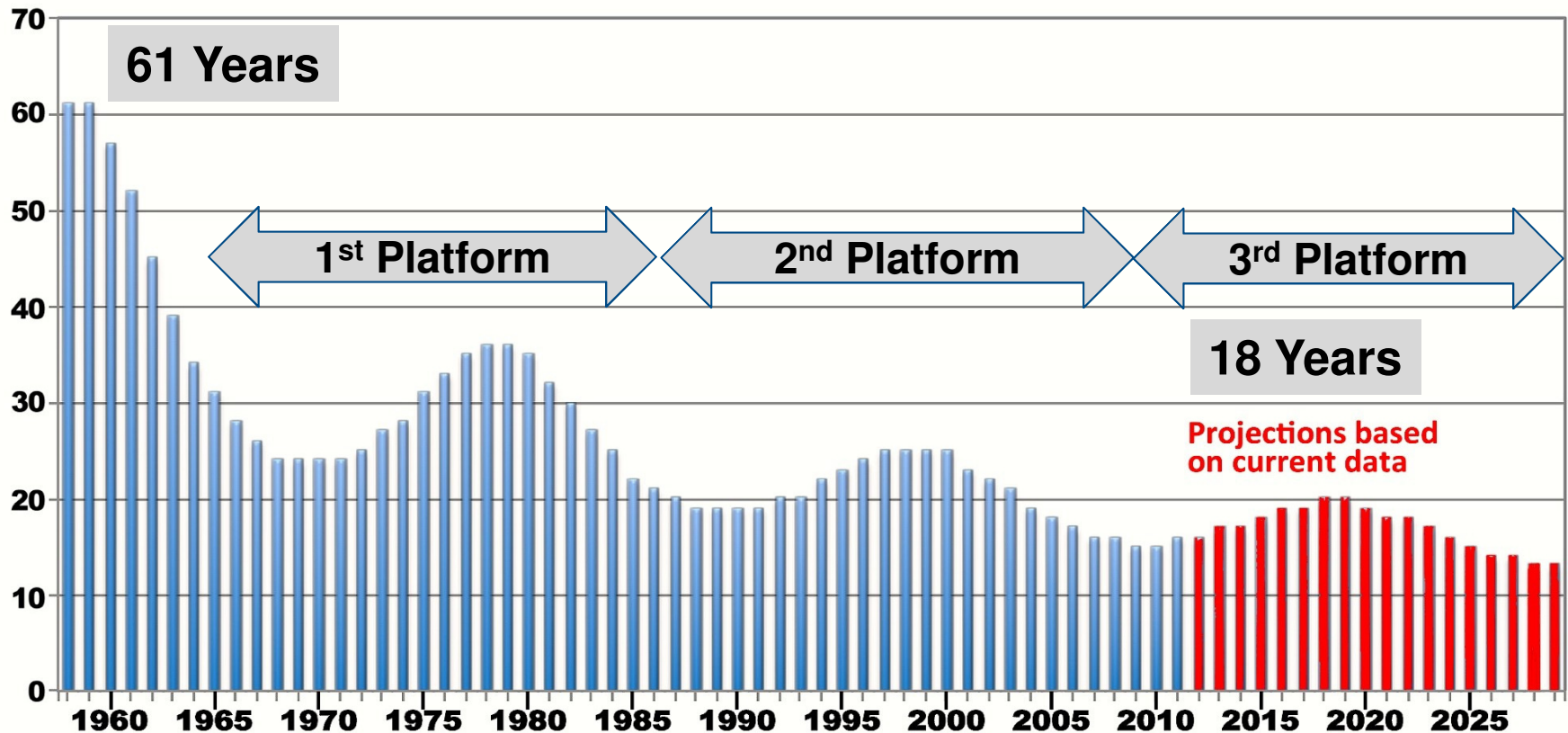
- Create greater **operational efficiencies**
- Build deeper relationships with their **customers**
- **Create new revenue streams** based on technology-enabled products and services

By 2018, 1/3<sup>rd</sup> of leaders in each industry we will be disrupted by 3rd platform competitors.



# Digital Disruption is Real

■ Average company lifespan on S&P 500 Index (in years)



Year (each data point represents a rolling 7-year average of average lifespan)

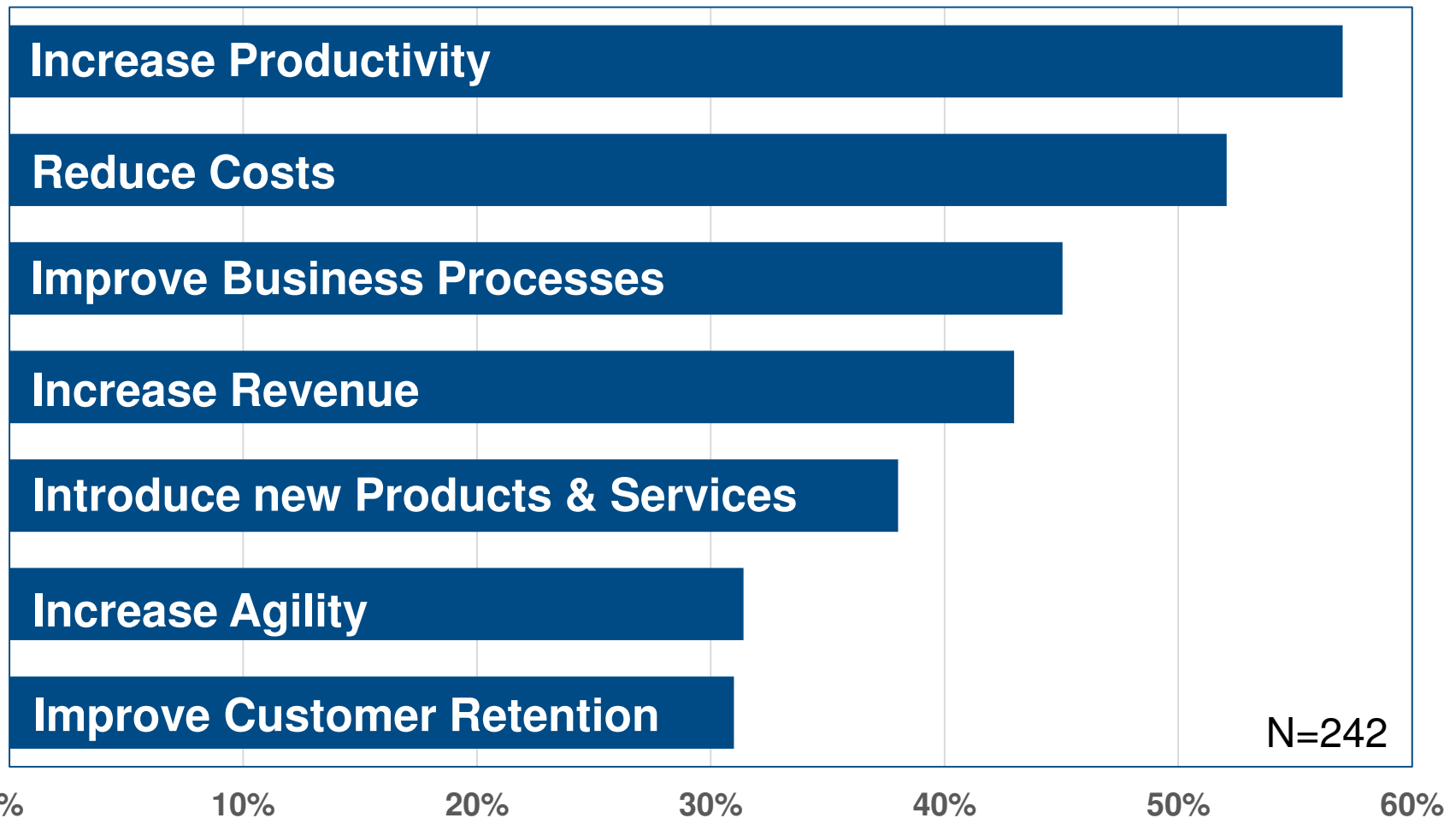
DATA: INNOSIGHT/Richard N. Foster/Standard & Poor's

# Digital Disruption is Real



# Business Initiatives

**Q. In 2015, which of the following business initiatives will be significant in driving IT investments at your organization?**



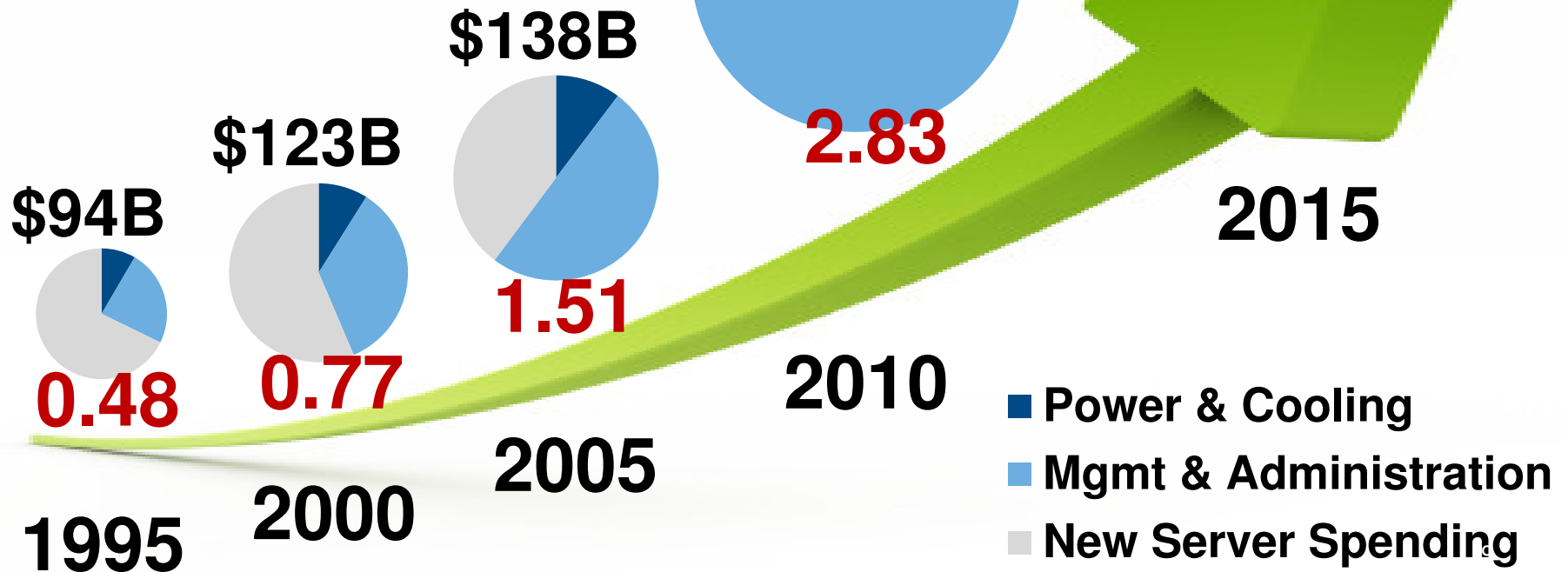


# Why OPEX Matters

*IT Efficiency? IT Effectiveness?*

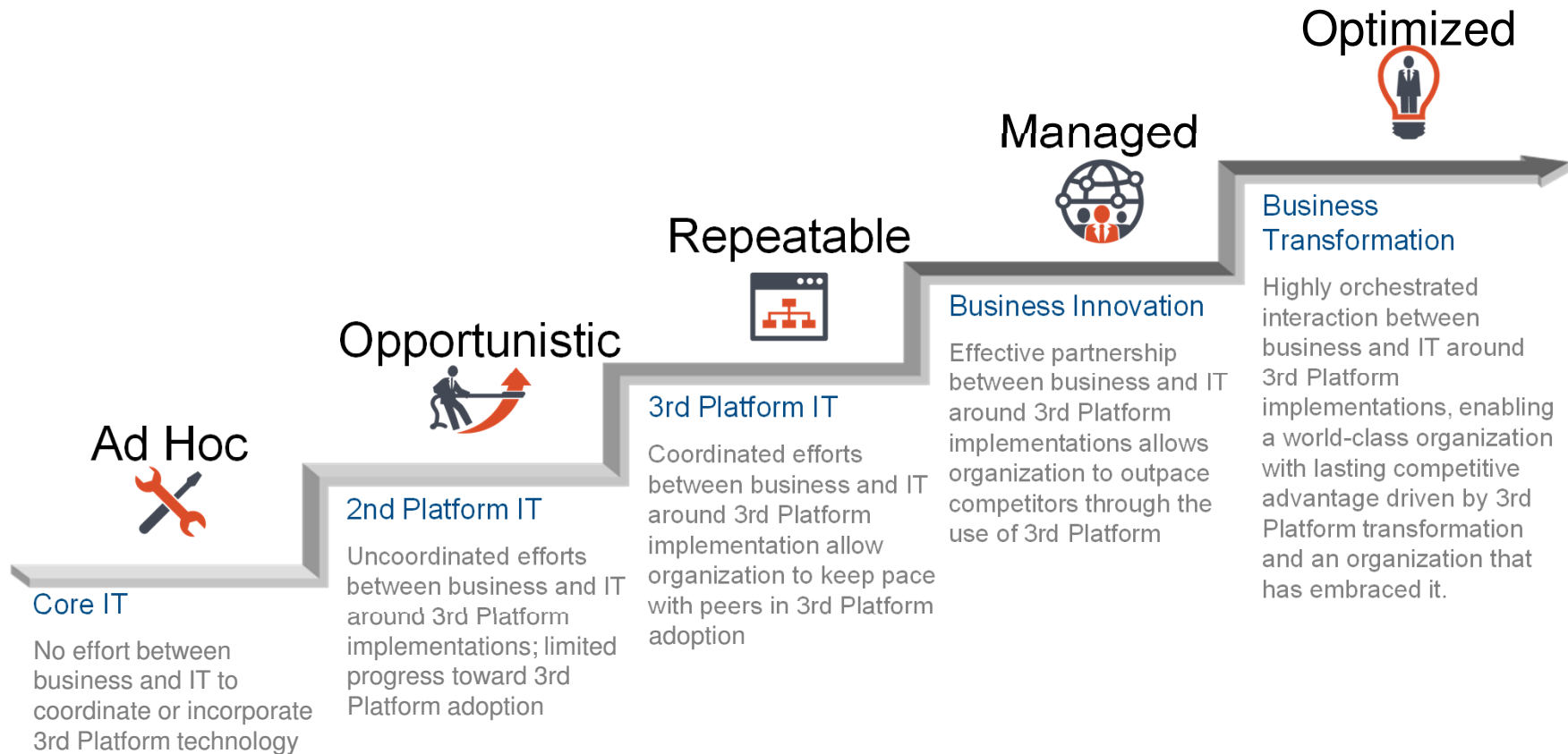
WW Server, P&C and Administration Spending

**OPEX/CAPEX Ratio**



# Transforming to a Business Innovation IT Org

## IDC's Enterprise IT Transformation Maturity Model



Source: IDC, Enterprise IT Transformation Maturity Model, 2014

# Digital Ubiquity: The Era of IoT

**Monitoring: Sensors / Connectivity**

**Control: Algorithms / Analytics**

**Optimization: UT / Efficiency**

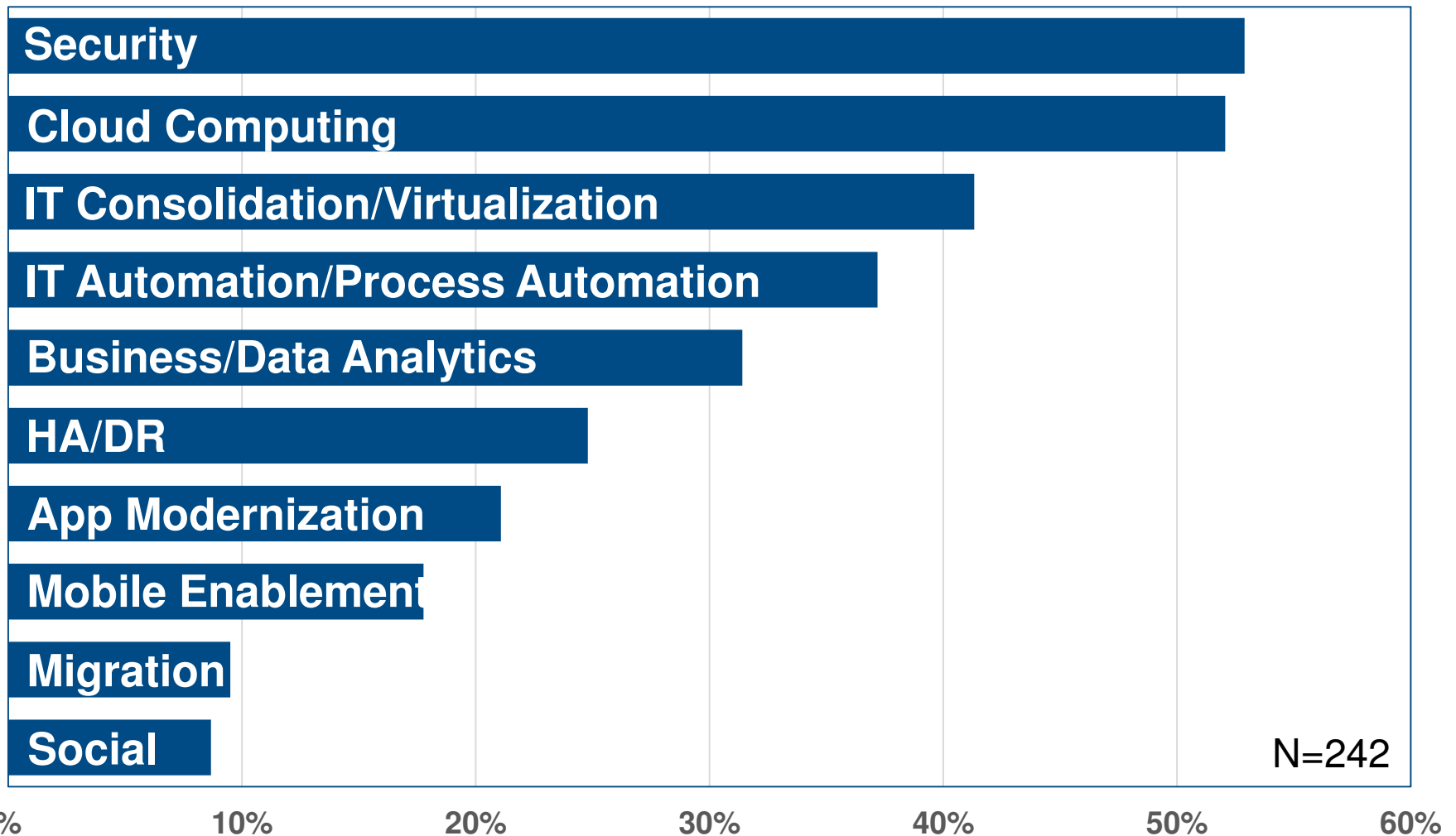
**Lifecycle Services: Self Learning / Autonomous**

## Impacts:

- |              |                  |
|--------------|------------------|
| • Design     | • Skills         |
| • Fulfilment | • Support        |
| • Security   | • User Interface |

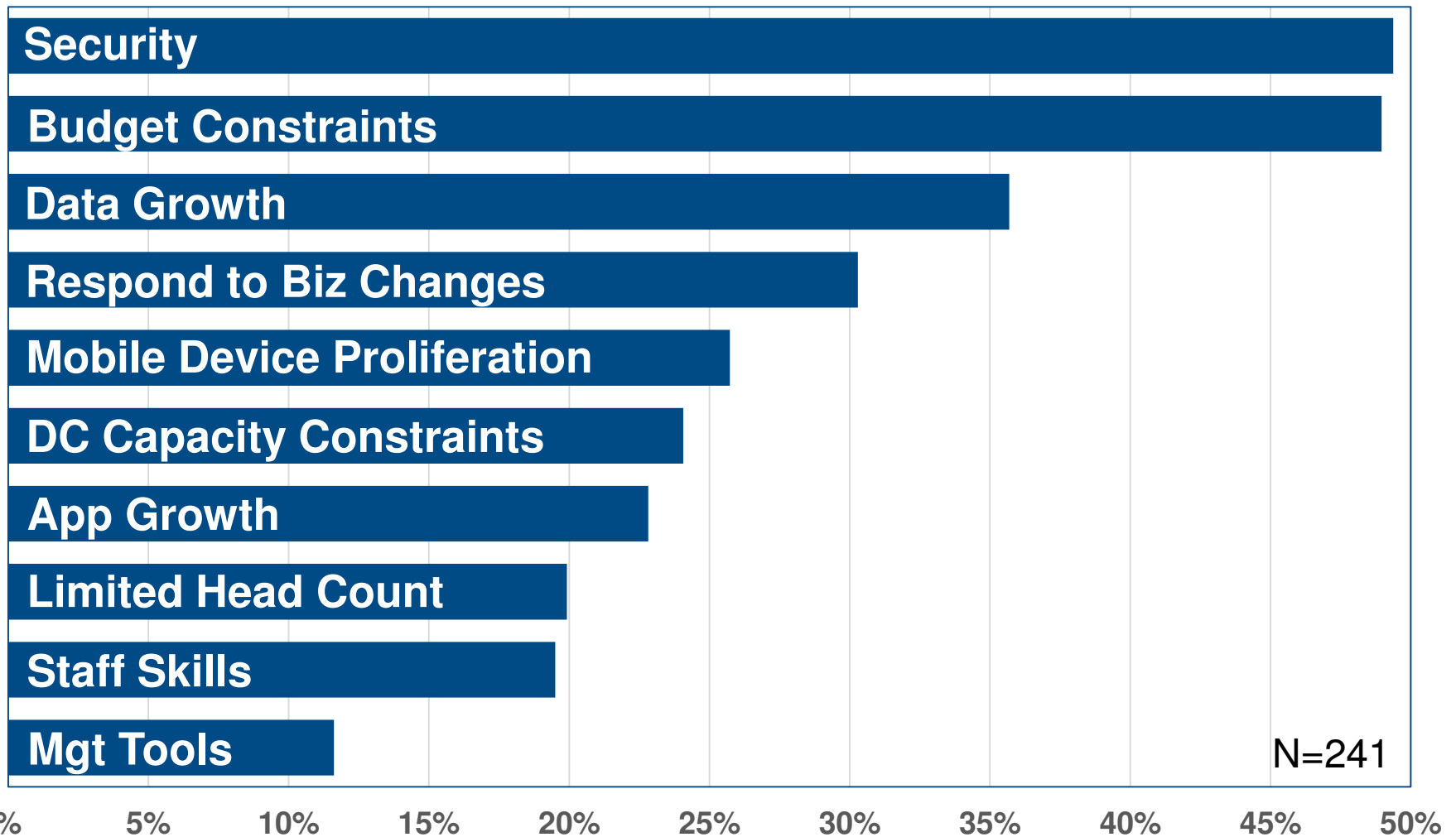
# IT Initiatives

**Q: In 2015, which of the following will be the top IT initiatives at your organization?**

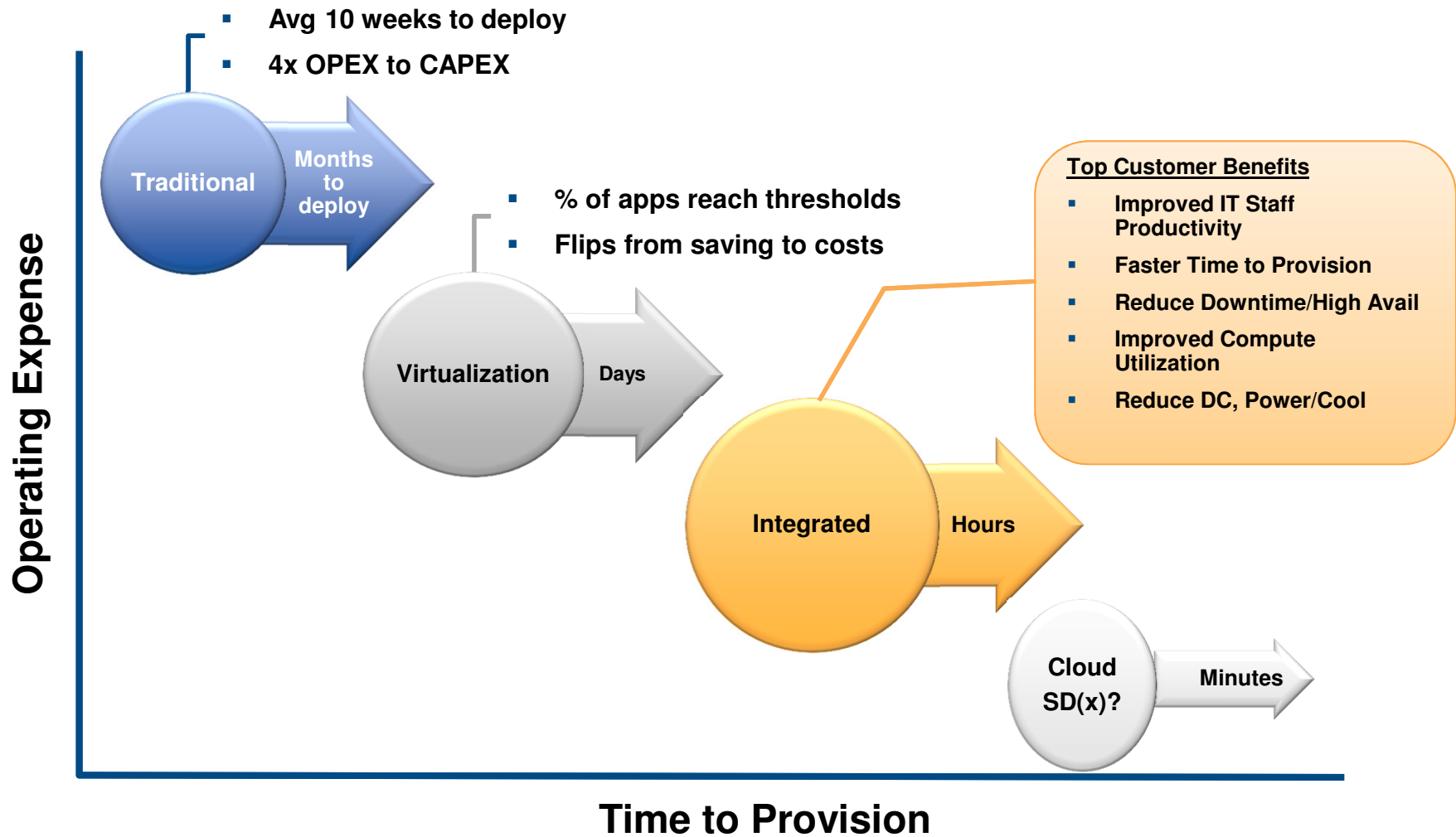


# IT Challenges

**Q. In 2015, what do you see as the primary challenges your IT organization faces?**

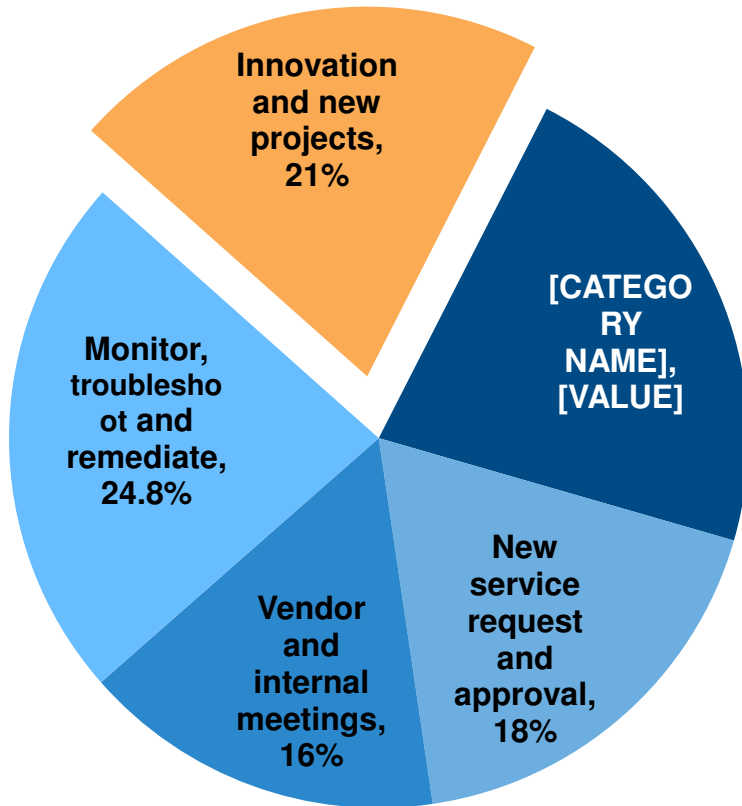


# Benefits: Agility, Speed, & Costs



# IT Operations Efficiency

## Allocation of IT Admin and Operations Staff Time



- Today, IT staff has little time to allocate towards innovation
- IS to drive efficiency to IT Staff.
  - Top Areas: Monitoring and Provisioning
- **+25%** of IT staff time is expected to be saved across all categories
  - Translates to a weeks worth of staff time per month
- There are further hints of IS as simplification consolidation tool
  - Less time in vendors and internal meetings

# Some Benefits Of Wide Scale Consolidation



**Flexibility:** System Resource Utilization **2-3x**



**Time:** Time to Market for New Services **2x**



**Reliability:** Reduced Incidents/Downtime **50-75%**



## Cost per User Reductions Span:

Server



**50%**

Storage



**25%**

Network



**50%**

Facilities



**25%**

Power & Cooling

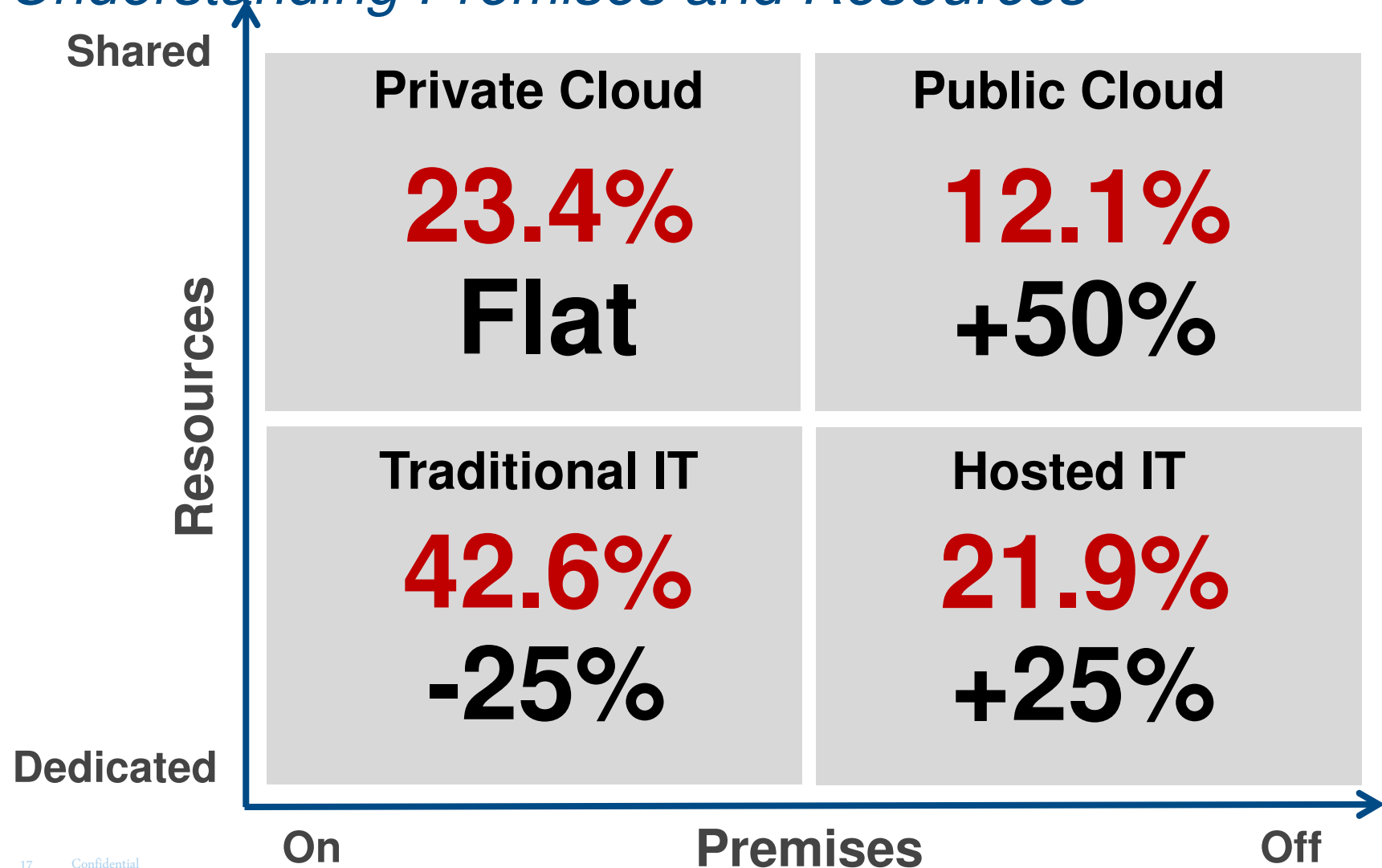


**50%**



# Market Rationalization

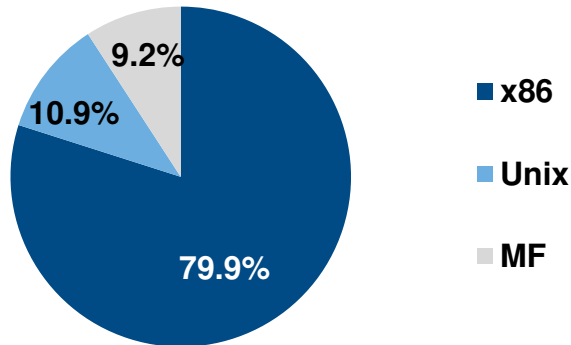
## *Understanding Premises and Resources*



# z Systems: A Competitive Overview

## WW Server Shares

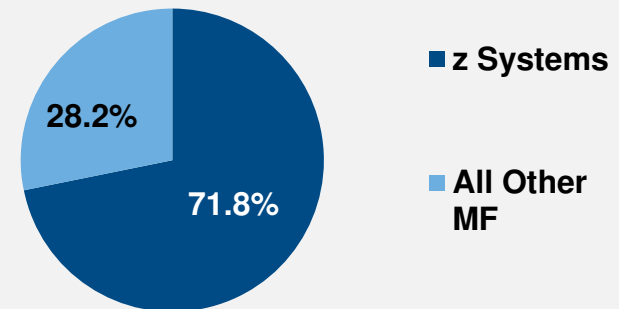
Annualized Spend: \$50.6B



Source: IDC Quarterly Server Tracker, Dec. 2014

## z Systems Leads Mainframes

Annualized Spend: \$4.6B



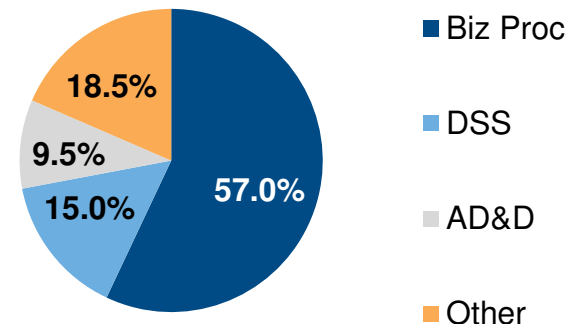
Source: IDC Quarterly Server Tracker, Dec. 2014

## z Systems Summary

- 30% of z Systems spending is in emerging markets. This is increasing.
- z Systems drive 41.1% of all high-end compute spending
- z Systems represent 44.8% of all high-end business processing spending
- z Systems represents 47.1% of all high-end mission critical compute spending

## z Systems Workloads

Total Spend: \$3.3B



Source: IDC Server Workloads, June 2014

# A Systems View of IT Requirements



## Systems of Record

### IT Owned /Driven

Speed, Volume,  
Integrity, Availability

Predictable expansion  
Less over-provisioning

Converged, SS(x),  
Private/Hybrid Cloud

### Cost Inelastic

(get it off, keep it off)

## Systems of Engagement

### CMO Driven/IT Influenced

Agility, Content Control,  
Scale, Throughput, Fidelity

Rapid expansion  
Frequent alteration

Object, NoSQL/HDFS,  
SD(x), Diversified Clouds

### Cost Elastic

(Content abhors a vacuum)

## Systems of Insight

### Business Driven

Elastic Compute, Deep  
Archive, Data Control

Enhance User Experience  
Monetize data assets

In-memory Appliances,  
Hyperscale, Cloud

### High Cost Elasticity

(What can I change next?)

# Final Thoughts....

- CIOs pay attention to time, money and people
- Workloads are the critical pivot point for both cloud and infrastructure decisions
- It's all about the application portfolio – singular portfolios vs. complex portfolios both impact infrastructure decisions and datacenter design
- In the 3rd Platform world, organizations must think about IT like financial asset managers
  - Boost efficiency in managing systems of record
  - Orchestration of external resources for systems of engagement
  - Maximize value of data with systems of insight

# Questions? Contact Info



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**Matt Eastwood**

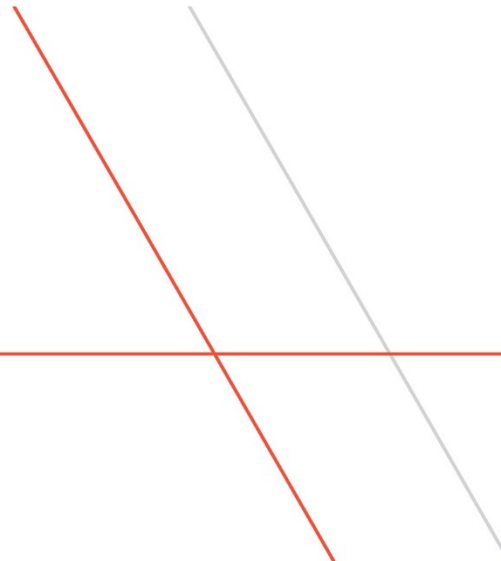
IBM z Systems



IBM Software for z Systems

Redefining digital business through integration of cloud, mobile, and analytics

Ray Jones, VP, z Systems software sales  
March 2015



# IBM Software for z Systems exploits z13 features and functions

Up to <b>3X</b>	more memory for improved transaction response times (DB2, IMS, MQ, Cognos, SAP, CICS, WAS)
Up to <b>80%</b>	improvement with SIMD and MASS libraries on z13 for deeper analytic insights
Up to <b>30%</b>	more Linux and Java workload throughput with simultaneous multi-threading (SMT)
Up to <b>40%</b>	increase zIIP capacity
Up to <b>32%</b>	increase IFLs capacity with SMT support
Up to <b>2X</b>	Acceleration in encryption to help protect the privacy of data
Up to <b>111K</b>	MIPS for increased application performance



# Java 8 and z13: Optimized CICS, IMS, and DB2 transactions

New



Up to **50%**  
improvement for  
generic applications

Up to **2X**  
improvement in throughput per core  
for security enabled applications

- **Up to 76% improvement** in throughput from z13 (SMT, SIMD, CPACF and more)
- **Up to 42% improvement** in throughput from IBM Java 8
- **Up to 60X improvement** with Java 8 exploiting z13 new SIMD vector hardware instructions for specific Java libraries and functions





# Compilers: z13 exploitation for increased performance

**New**

## Enterprise COBOL for z/OS v5.2

- Leverage SIMD instructions to improve processing of certain COBOL statements
- Increased use of DFP instructions for Packed Decimal data
- Support COBOL 2002 language features: SORT and table SORT statements
- Allows applications to access new z/OS JSON services

Up to **14%** reduction in CPU time\*

## Enterprise PL/I for z/OS v4.5

- Leverage SIMD instructions to improve code for SEARCH and VERIFY
- Raised string size from 32K to 128M
- Improved middleware support
- Provide full support for JSON (Parse, Generate, and Validate)
- Addressed 28 RFE's

Up to **17%** reduction in CPU time\*

## z/OS XL C/C++ V2R1M1

- Vector/SIMD support (option, datatype, and built-in functions)
- High performance Math Libraries specifically tuned for z13
- New support for inline assembly (GNU compatibility)
- New Debug support for Vector/SIMD data type

Up to **17%** increase in throughput\*



\* The performance improvements are based on internal IBM lab measurements. All benchmarks were optimized and executed on zEC12 and z13, and built using the highest optimization level. Performance results for specific applications will vary, depending on the source code, the compiler options specified, and other factors.

# Quickly build out complex cloud workload instances on z Systems

**New**

## *IBM Custom Patterns for Linux on z Systems*

- Reduce deployment error/fix
- Reduce need for deep product skills
- Improve quality of delivery
- Reduces operating and capital expenses

## More

patterns to be delivered in 2015

## 12 patterns

for key z System portfolio

WAS ND  
WAS Liberty  
ODM Decision Server  
ODM Decision Center  
Integration Bus  
DB2

Business Process Server  
Business Process Center  
Business Monitor  
WebSphere Portal  
WebSphere MQ  
MobileFirst Platform

Up to **80%**  
reduction in  
multi-product  
deployment

# Continuous software release and deployment capability across hybrid environments



## UrbanCode Deploy

*Automate the deployment of applications, databases, and configurations across heterogeneous environments*

- Simplifying z/OS application deployment by providing OOTB support for clients to automate JCL submission
- Plugins for CICS, DB2, and IMS to enable clients to leverage predefined actions/steps during deployment
- Added support for SMP/E packaging for more standard installation and maintenance

## UrbanCode Release

*A release management and coordination platform that manages multiple applications*

- Enhanced release tracking for large enterprises
- Ability to better aggregate, assess, and report on multi-application release readiness
- Support for open plugin framework

# Enabling next generation cloud applications for z Systems

**New**

**IBM Bluemix services for z Systems**

**Z Systems Hybrid Cloud Connect Test Drive**

**Delivering full enterprise-level z Systems cloud integration services that are easy to integrate into cloud apps**

## IBM Bluemix services for z Systems

- Expose services in a secure manner
- Drive DevOps composable apps to connect z/OS data decryption services

## z Systems Hybrid Cloud Connect Test Drive

- Easily connect on-premise systems to a public cloud running core operations on the mainframe

**Days vs. months**

from idea to running applications

**100%**

Open standards based

**2X** performance and

**1/2** the cost



# CICS: Enterprise grade mixed language application serving

**New**

## **IBM CICS Transaction Server V5.3 Open Beta**

### **Service Agility**

Enhanced support for WebSphere Liberty Profile running inside CICS

- Additional Liberty features
- Enhanced interoperability
- Simplified management

### **Operational Efficiency**

Reduced CPU utilization and improved transaction tracking

- Web service optimizations
- Improved trace and monitoring
- Enhanced transaction tracking

### **Cloud & DevOps**

New Cloud and DevOps support to automate CICS deployments

- Automated builds
- Scripted deployments
- UrbanCode Deploy support

***Future support for 64-bit SDK for z/OS,  
Java Technology Edition, Version 8 (Java 8)***

**Up to 24% reduction  
in CPU per transaction  
seen in CICS on z13**



# Accelerated database analytics for z Systems



## DB2 with Blu Acceleration

### Accelerated database acceleration for Linux on z Systems

- Software based (load and go) with seamless integration with DB2 LUW
- Up to **100x** acceleration factor
- Petabytes scalability

## IBM DB2 Analytics Accelerator

### Accelerated database acceleration for z/OS on z Systems

- Plug and play appliance with seamless extension of DB2 for z/OS
- Up to **2000x** acceleration factor
- Terabytes scalability

*Future plans for in-database  
transformation*

# Easy to deploy, simple to use Cloud Management Solution

## *IBM Cloud Manager with OpenStack for z Systems*



### **Heterogeneous and integrated management support**

- z Systems managing Power and x86 servers
- Central management across multiple hypervisors & domains
- All IBM server architectures & major hypervisors supported

### **Accelerated time to market with pattern support**

- Chef-based patterns based on OpenStack Heat pattern engine is now supported on z Systems
- Workload deployment based on patterns speeds delivery of new services



# End-to-end security for z Systems



## ***IBM Security zSecure Manager for RACF z/VM***

*Effective RACF  
administration,  
reporting, and auditing*

- New support for compliance framework and z/VM Currency

## ***IBM Security zSecure Audit SSE***

*Effectiveness of security  
compliance policy checking to  
include IBM MQ for z/OS*

- New compliance check for STIG v6.20

New Crypto  
express7S  
supports **5X** the  
amount of LPARs  
per adapter



# Transaction and Business Processes for z Systems



## IBM TXSeries for Multiplatforms

*Integrating data and applications between distributed and z Systems*

- New alternate COBOL compiler support on Linux with COBOL-IT
- Support for Visual COBOL
- Simultaneous debugging support of TXSeries applications using IBM COBOL

## BPM and Monitor on Linux on z Systems

*Tooling and run time for process design, execution, monitoring and optimization of business processed*

- Enhancement for serviceability and upgraded operating system support

## WebSphere Liberty Profile for z/OS V8.5

- Enhanced z/OS Connect discovery services, Java EE7 support and improved liberty on z/OS security

## Integration Bus for z/OS

*Connectivity and data transformation in heterogeneous environment*

- Support for Chef scripts for simplified provisioning
- Ability to publish services to Cloud integration
- Enhancements to developer experience via web browser plugin

# IBM z Systems Collocated Application Pricing

**New**



## *Next evolution of z Systems sub-capacity software pricing*

- Applicable to growth from new applications on all zEnterprise and later machines
- Approval process validates the workload is a new application on the z platform
- zCAP Defining Programs include key sub-capacity-eligible IBM programs
- Customer reports CPU time for zCAP Defining Programs, similar to Workload Mobile Pricing

**Run your  
systems the  
way you  
want to run  
them**



***MWRT sub-capacity reporting tool  
enhanced soon***

# Sparda-Datenverarbeitung eG: Leveraging a world-class enterprise computing system to ensure 24x7 customer service



***Reduces total cost of ownership by about 50 percent, cuts administration effort and enables a team of three to manage 120 servers***

## **Ensuring uninterrupted customer service**

Expanded its existing Linux environment on the mainframe using speciality engines, and Linux Enterprise Server to operate large Oracle databases and offer excellent availability with automated failover within seconds

## **IBM Solution**

IBM z System  
IBM DB2 for Linux  
IBM Tivoli Solutions  
IBM WebSphere Application Server  
IBM GDPS  
SUSE Linux Enterprise Server

***“Today, we deploy new systems quickly and scale systems as required – optimized virtual machine sizing helped us reduce our data center costs,”***





**Thank you**