Unleashing the Power of Big Data

Disrupt or Be **Disrupted**

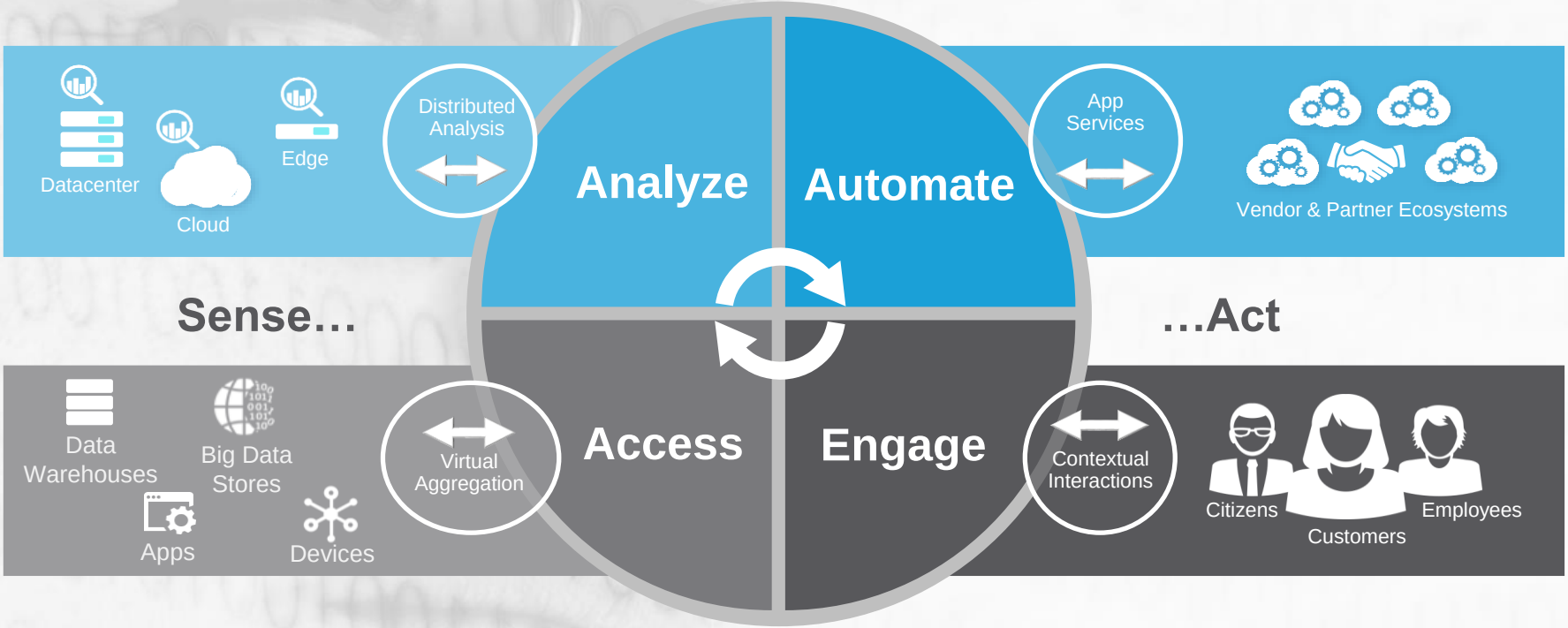
41% of executives say digital disruption increases risk of being put out of business

Digital Vortex 2015

"New technologies combine to create a business innovation platform, not just a technology platform, helping transform every industry on the planet."

IDC (Dec. 2014)

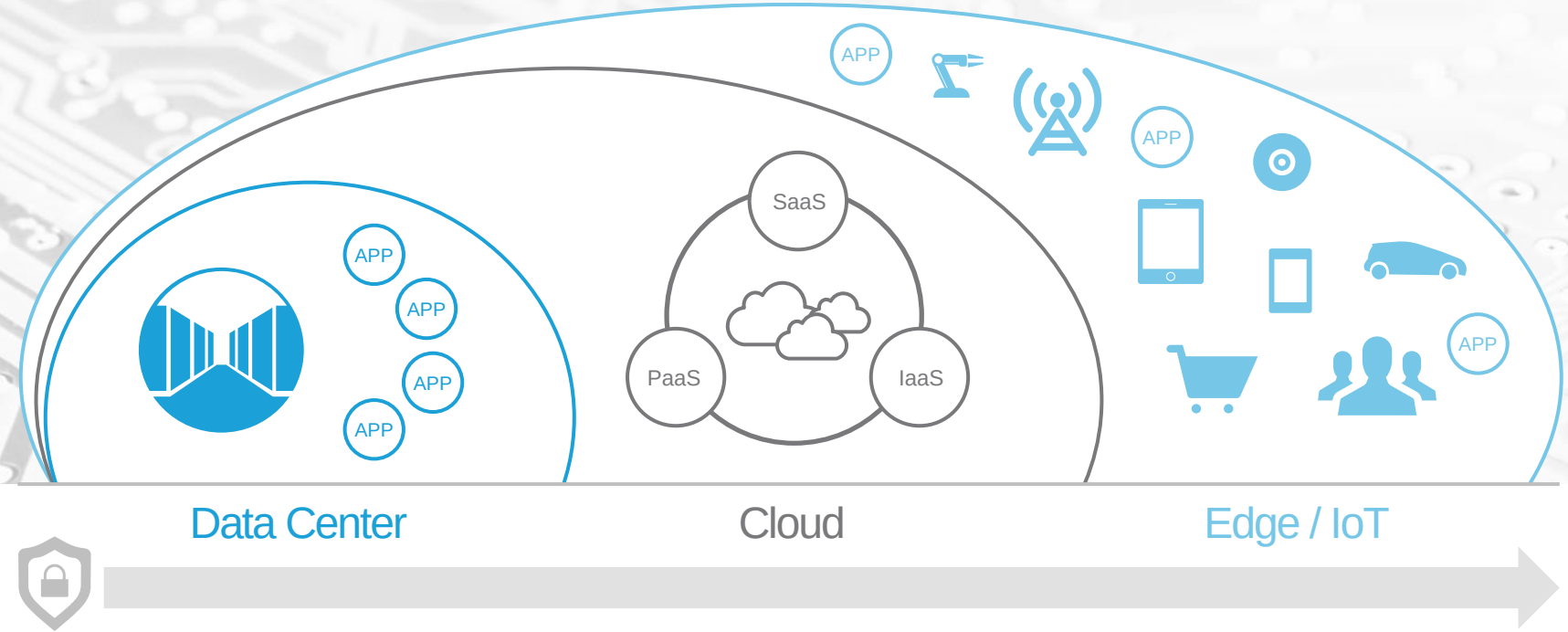
Analytics & Automation Software…Driving Insights to Action



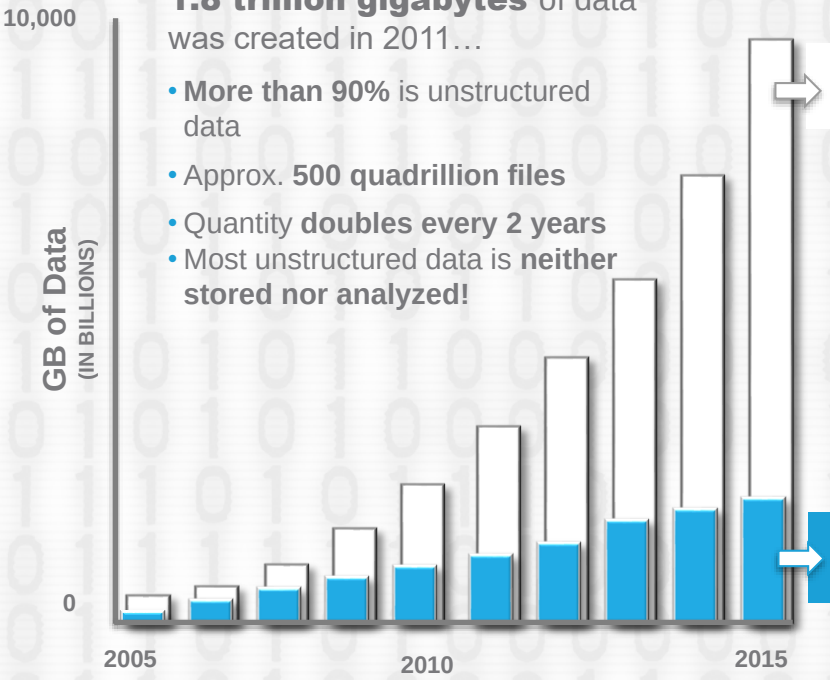
The Forrester Wave™: Big Data Hadoop-Optimized Systems, Q2 2016

"Cisco Systems provides a viable midsized system at attractive price point. Cisco UCS Integrated Infrastructure for Big Data provides a secure and scalable infrastructure to support enterprise requirements. Cisco's UCS solution comes pretested and prevalidated for Cloudera, Hortonworks, IBM, and MAPR, providing a lower-cost and scalable storage platform to support Hadoop deployments. Management tools such as Cisco UCS Manager and Cisco UCS Director allow for simple configuration of big data Hadoop clusters that can adapt dynamically to changing workloads. Cisco's key differentiators lie in its ability to offer a wide range of configurations, its strong focus on internet-of-things (IoT) use cases, and its broad partner ecosystem."

A Broad Perspective To Set The Scene

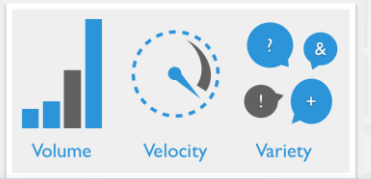


The Explosion of Unstructured Data



1.8 trillion gigabytes of data was created in 2011…

- **More than 90%** is unstructured data
- Approx. **500 quadrillion files**
- Quantity **doubles every 2 years**
- Most unstructured data is **neither stored nor analyzed!**



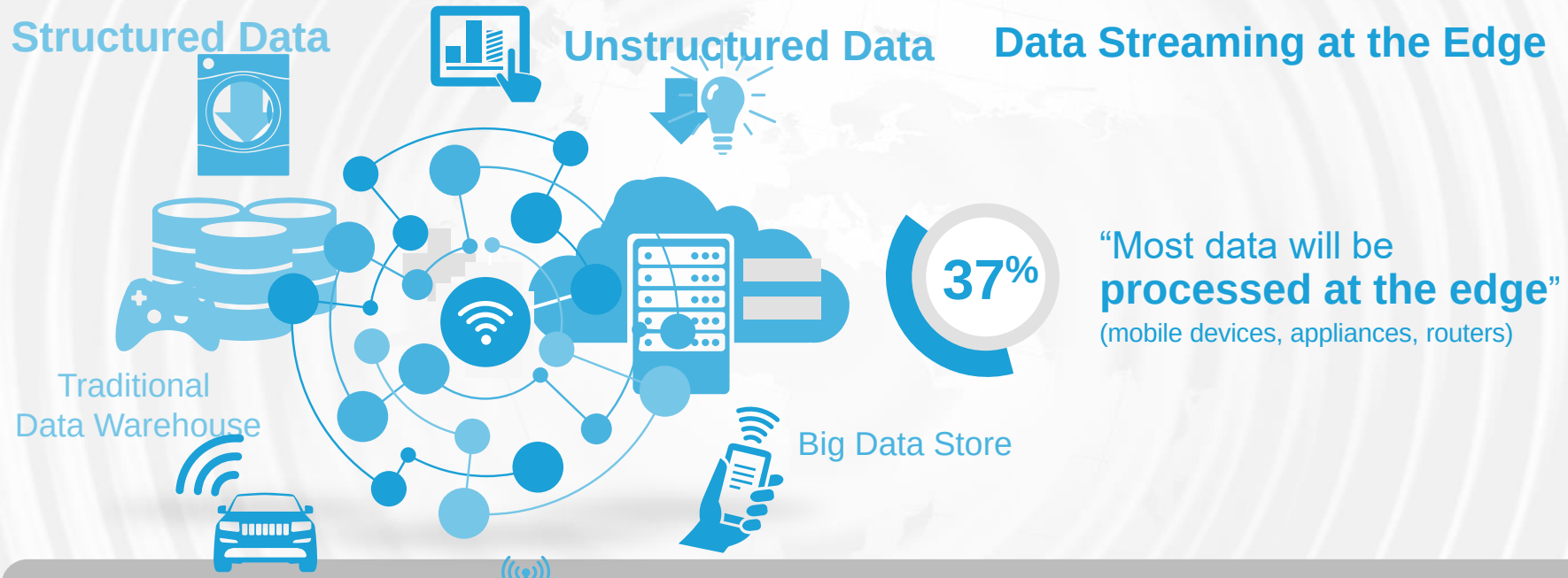
STRUCTURED DATA

Source: Cloudera

Digital Enterprises Create Data at the Edge

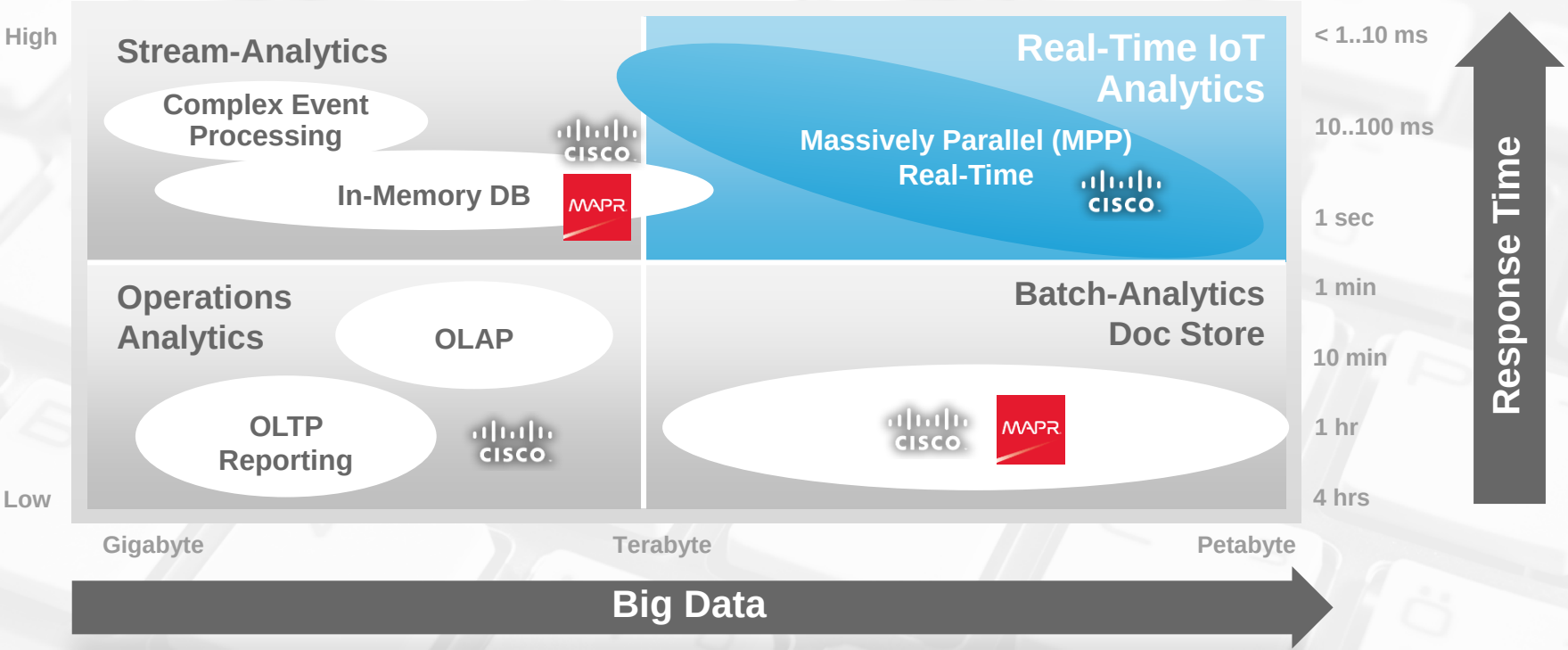
A New Approach is Needed to Reach and Analyze That Data

Widely Distributed, Streaming, Short Shelf Life, Too Big to Move

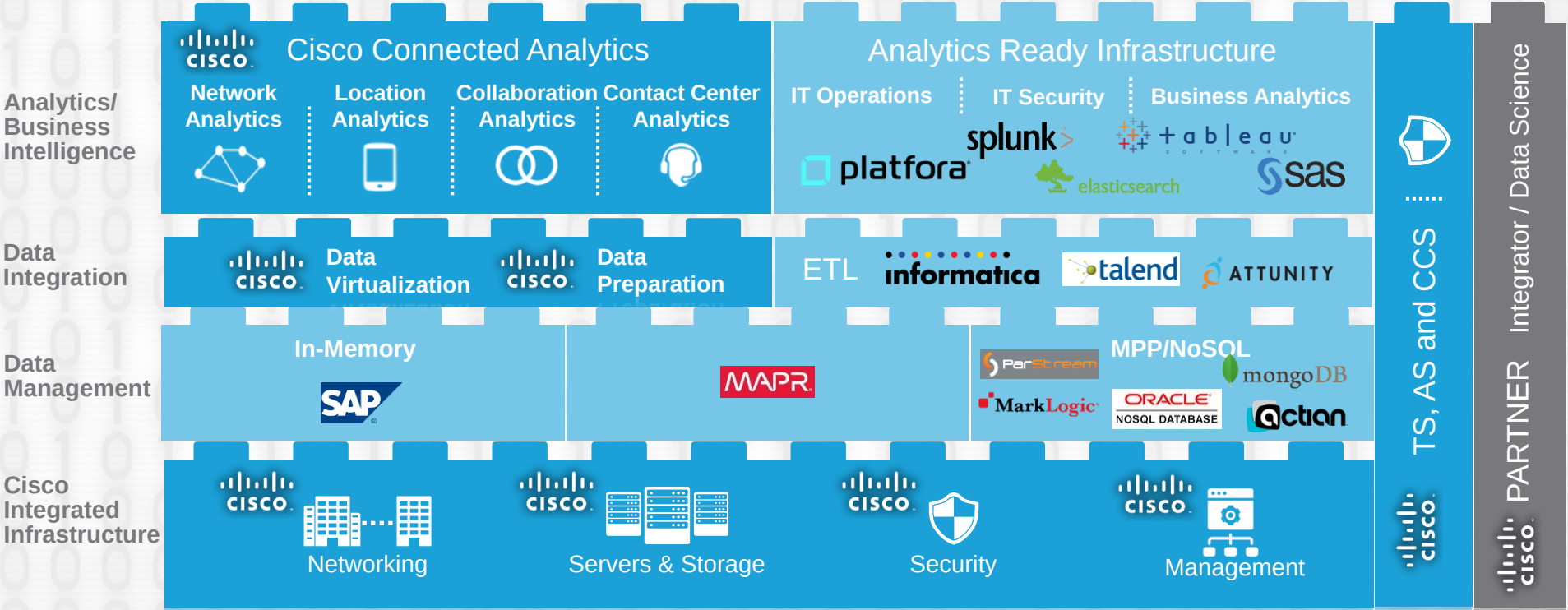


Three years from now, where will most data generated by IoT solutions be processed?

Choose Your Database Based on Your Use-case

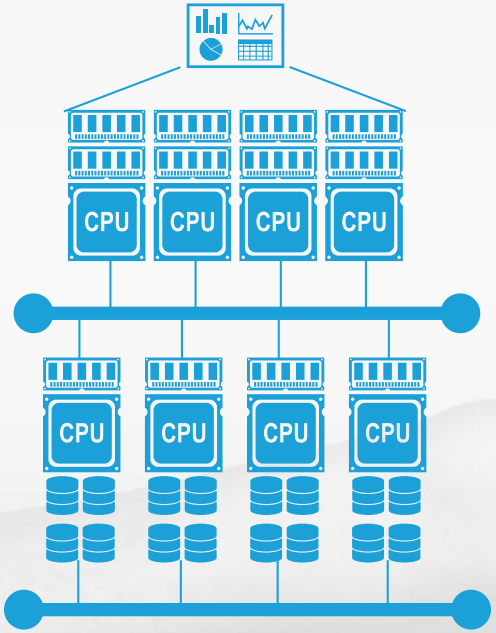


Delivery Model - Solution Building Blocks for Big Data & Analytics



Cisco Integrated Infrastructure for SAP HANA

HANA Appliance



HANA Compute / Network

- 4-16 x 2TB B460 HANA nodes
- 2x 6332 FI
- 1x N3K (or N9K / ACI)
- Mandatory HWCCT Appliance KPI met
- Mandatory Solution Support
- Opt-out Cisco Managed Service

HANA Storage

- Scalable C240 storage
- 3-8x C240 Storage Nodes
- 24x 1.8T HDD
- RHEL 6
- MapR Data Platform

Cisco is a Leader in Big Data Infrastructure

Industry's Best TPCx-HS Performance in ALL Categories

	Better	Cheaper
1TB	11%	30%
3TB	14%	10%
10TB	28%	3%
30TB	12%	33%
100TB	The Best— No Comparison	

External Benchmarks

Key Performance Indicators for Cisco UCS Integrated Infrastructure for Big Data

32%
Lower Operational Cost

56%
Faster Time to Market

26%
Data Scientist/Analyst Productivity Gained

IDC

A Leader in Hadoop Optimized Systems

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Forrester

The Forrester Wave(TM): Big Data Hadoop-Optimized Systems, Q2 2016

Big Data Projects Requires Right Networks

Table 2. Summary of Big Data Switching Requirements

Typical Data Center Ethernet Switch Ranges	Recommendations for Big Data Switches
Line-rate is common for most data center switches.	Line-rate should be a requirement
Server-facing interfaces range from 10/100/1,000 Mbps to 40 Gbps	10GB interfaces should be utilized for interfaces that connect to big data nodes.
Uplink interfaces range from 1GB to 100GB	Prefer uplink interfaces that are 40GB or higher.
Oversubscription on uplink typically ranges from 12:1 to 1:1	Prefer lower subscription rates, ideally 3:1 or better.
Intraswitch latency ranges from 0.19 to 10 microseconds	Prefer lower latency, less than 4 microseconds, ideally closer to 1 microsecond
Per-port buffers range significantly, typically from several hundred kilobytes (static) to several megabytes (dynamic)	Prefer higher buffers, ideally at least 1 megabyte per port.

Source: Gartner (October 2013)

How?

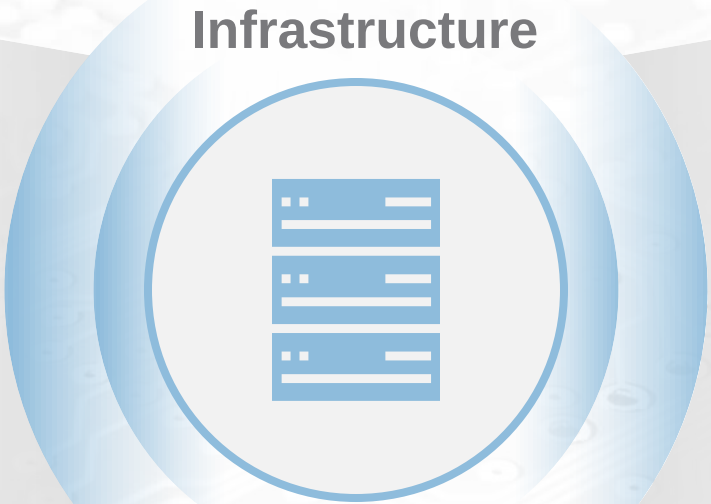
Applications Are Now Everywhere
Teach the Infrastructure the Language of the Applications

Policy-Driven

Infrastructure

Application Language

- Application-tier policy and dependencies
- Security requirements
- Service-level agreement
- Application performance
- Compliance
- Geo dependencies

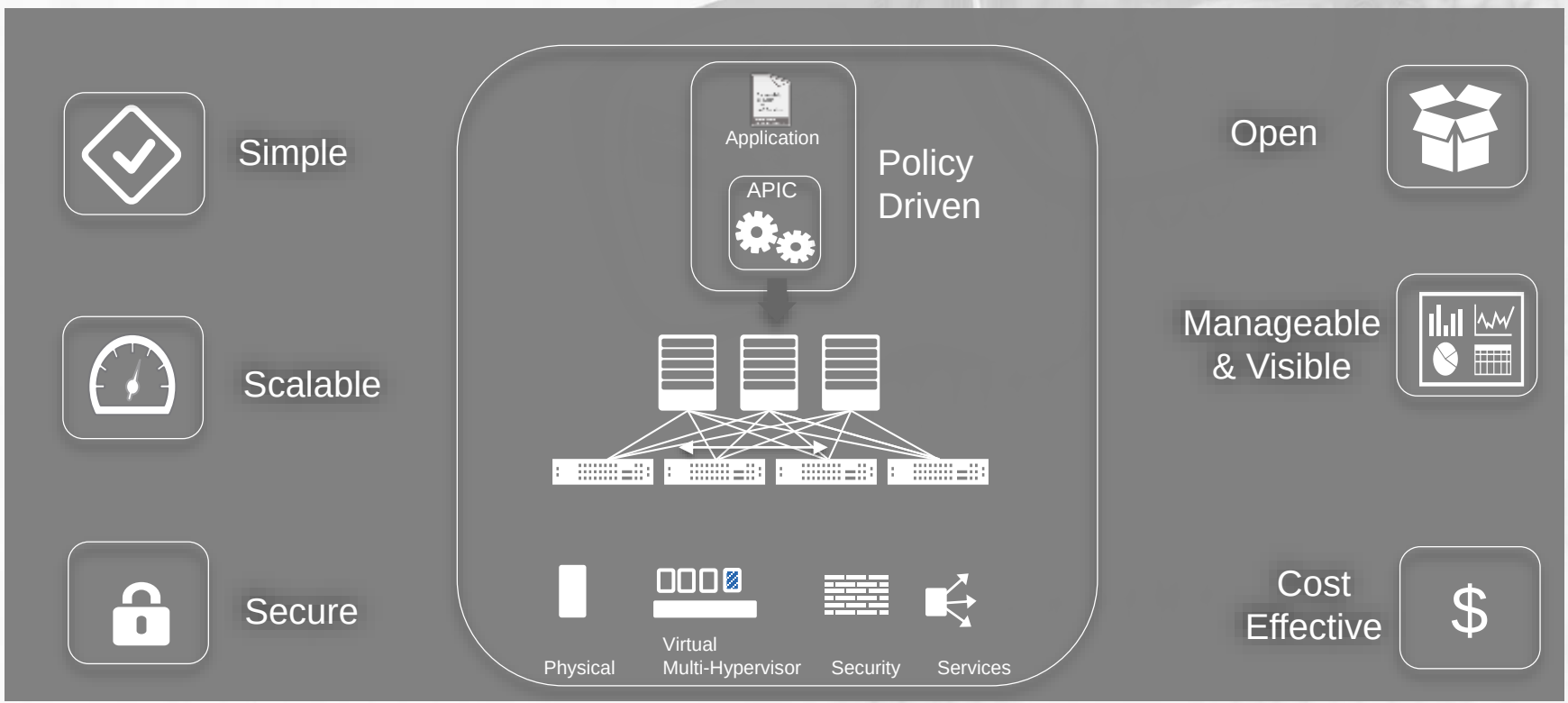


Network Language

Compute/Storage Language

Security Language

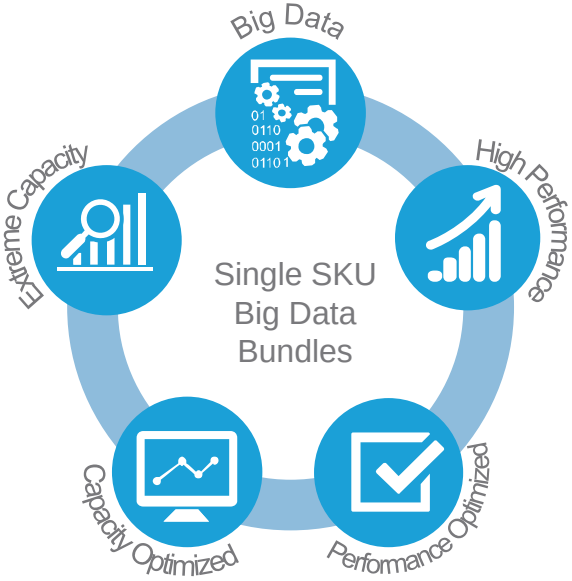
Application Centric Infrastructure



Cisco UCS Integrated Infrastructure for Big Data

3rd generation of Cisco UCS Common Platform Architecture

- Pre-tested, pre-validated and documented best practice designs
- optimized for performance and capacity – lowering risk and TCO
- Designed to scale from small to very large as business demands
- Unified and centralized management with seamless Integration with enterprise applications
- Easy to {order, deploy, service}



UCS 6300 Series Fabric Interconnects

LAN, SAN, Management

UCS C220/C240 M4 Servers

UCS C3260