How Big Data Helps Manage Big Networks

Making Sense Of Machine Chatter

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What Is Big Data

- Wikipedia
…big data is a collection of data sets so large and complex that it becomes difficult to process using on-hand data management tools

- Gartner
Its not about the size of the data, but what you do with it.

- Data is only as good as the decisions it helps us make

The Dimensions of Big Data

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What Defines the Performance of Big Data – The 4 Vs!

- Volume of Data
  - Historical Storage
  - Rate of Incoming Data
- Velocity of Analytics
  - Real time analytics
  - Reporting
- Variety
  - Big Data is Any Data
  - Analyzing different data together yields better insights
- Veracity
  - Big Data is about decisions
  - You can't act on data you don't trust
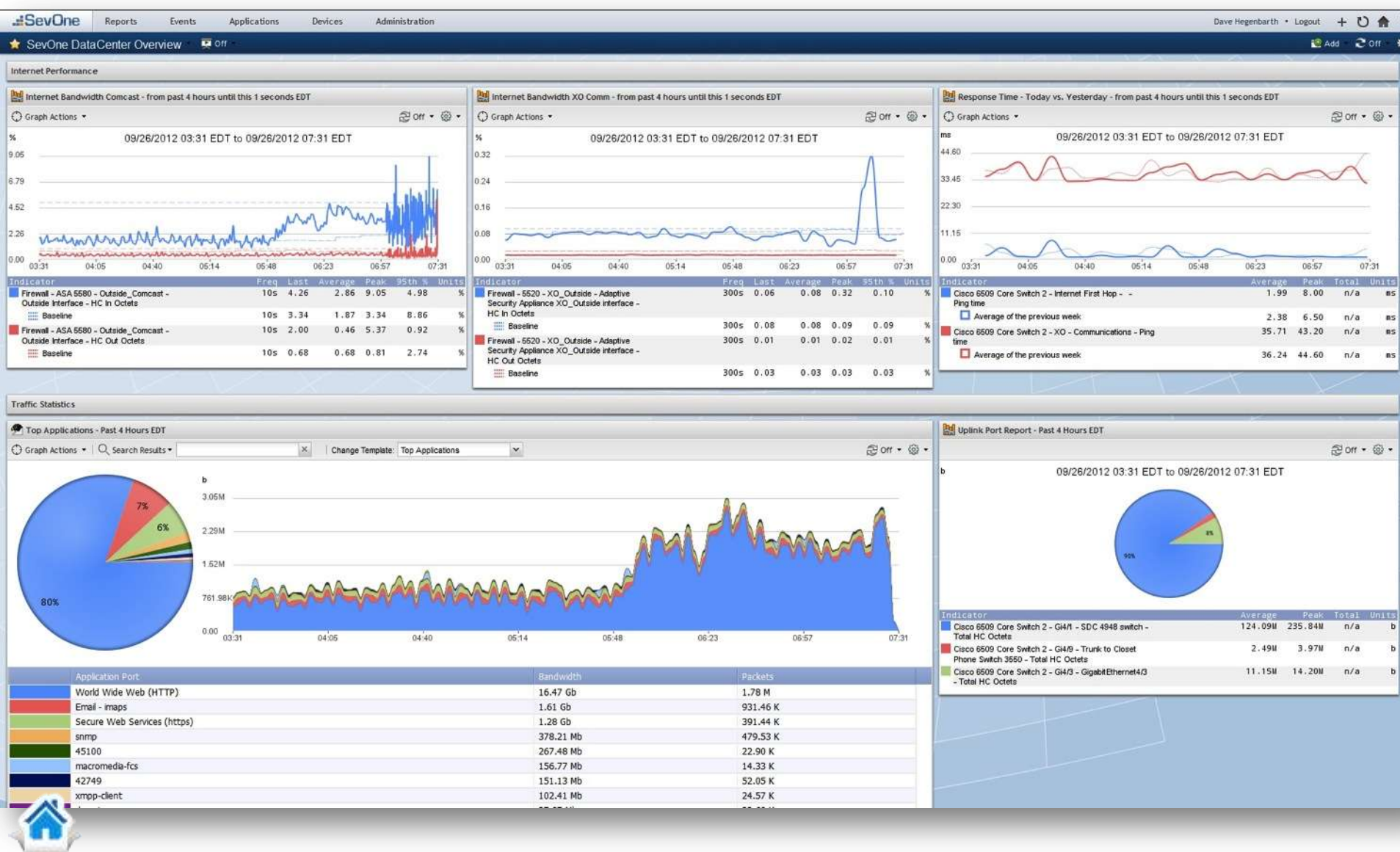
Where Is Big Data

The poster children of Big Data
* Social Media
* Financial Trading
* Telecommunications

Big Data is connected directly to the industry's revenue models. Being able to extract more value from the data the organization is capable of generating is a distinct competitive advantage and determines the success.

The Rise of The Machines

Machine to Machine (m2m) Data Is Growing

- Thousands of devices generate millions of metrics (50 billion connected devices by 2021)
    - Temperature
    - Bandwidth
    - Power
    - RFID
- Size of Data
    - Variety and Nature of Data
    - Poll vs. Stream
- Time to Respond
    - When is it two minutes too late

IT Performance Monitoring

Application Monitoring

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- All *agentless* monitoring

Virtual Infrastructure Monitoring
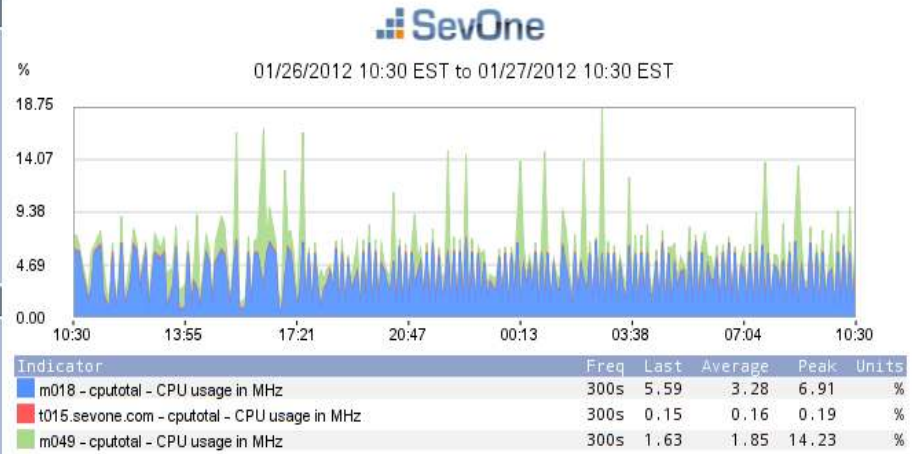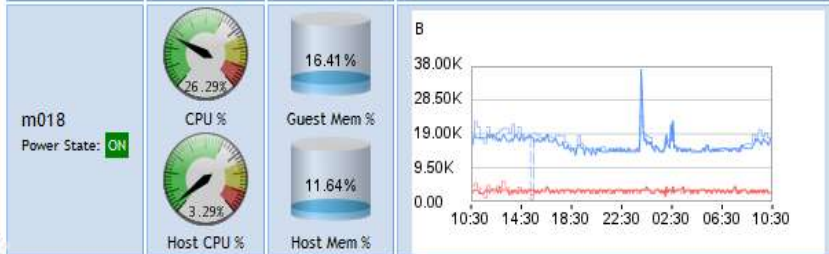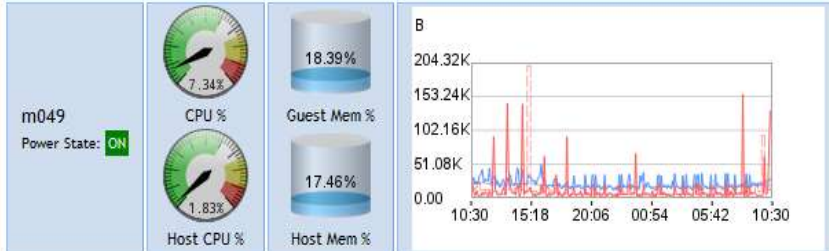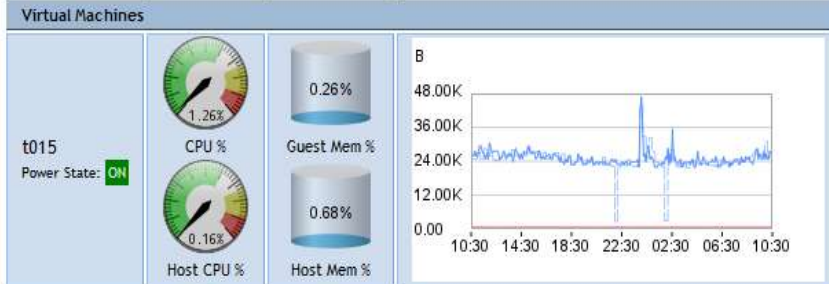
Voice Monitoring
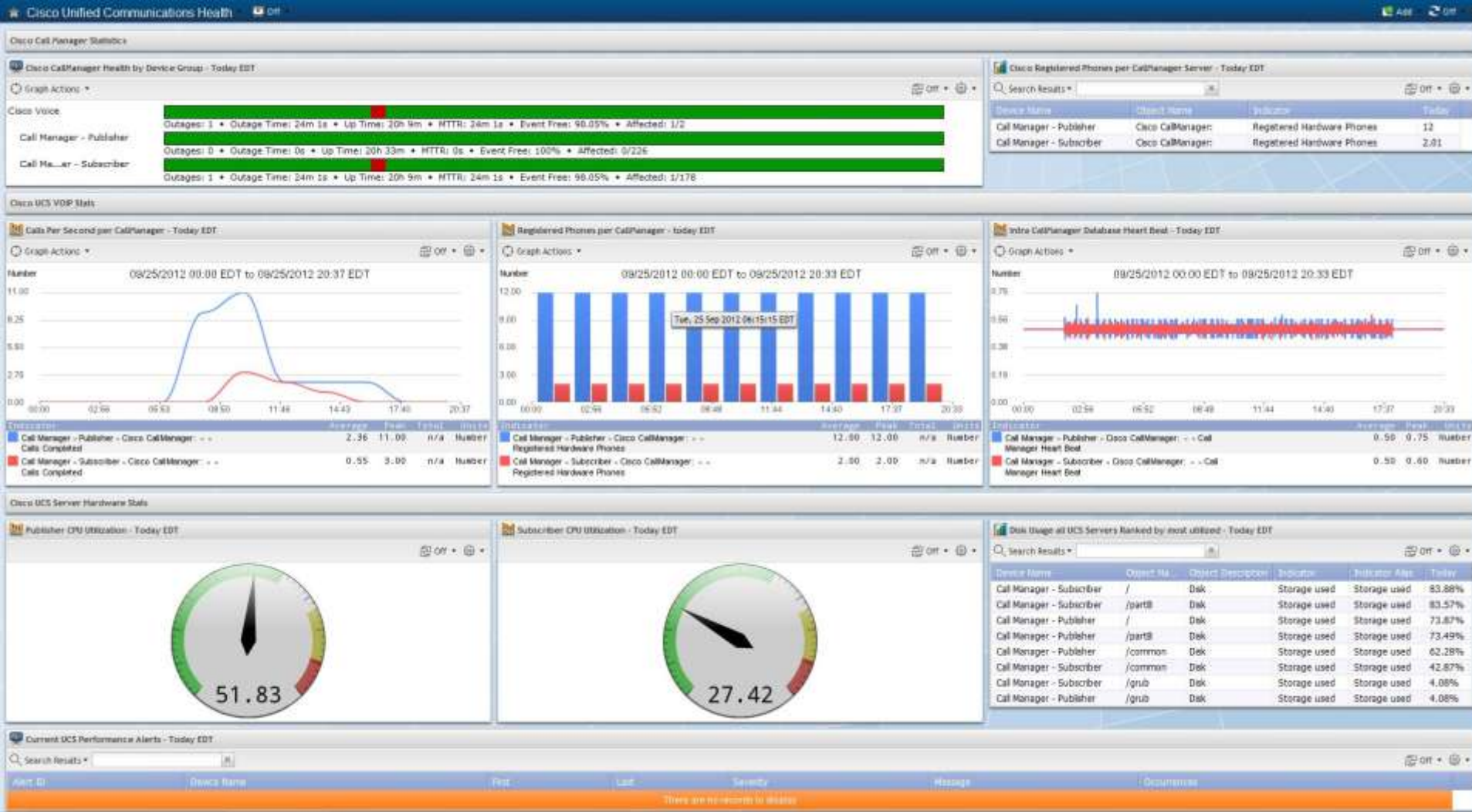
Existing IT Management Solutions Don't Scale, SevOne is Big Data Proven
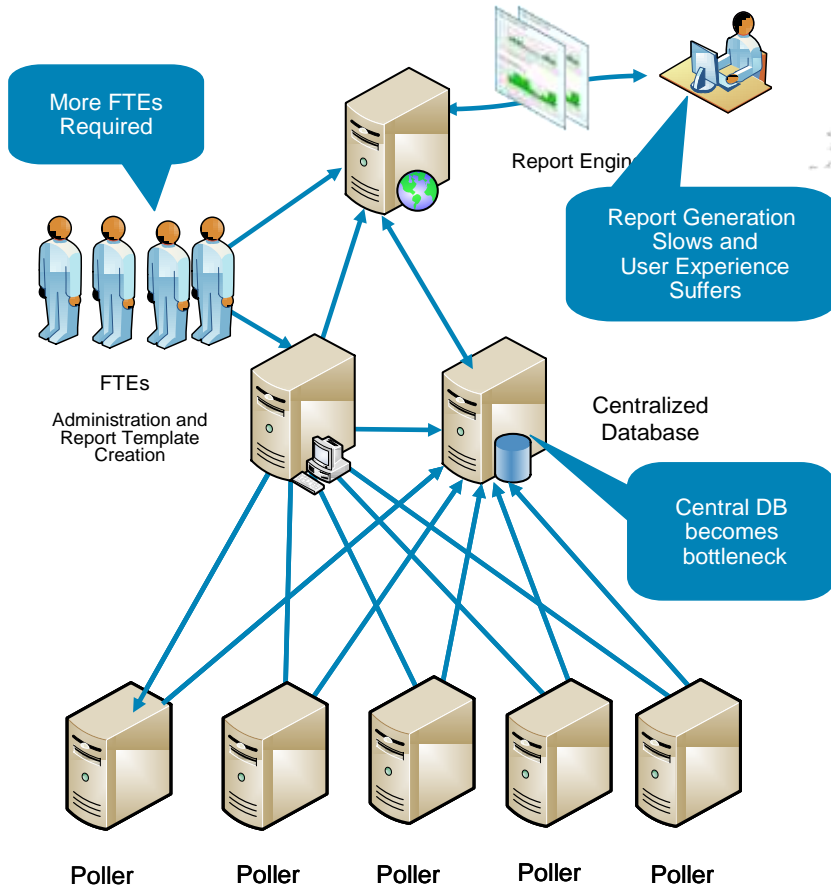
SevOne Open Architecture

ITSM Integrations
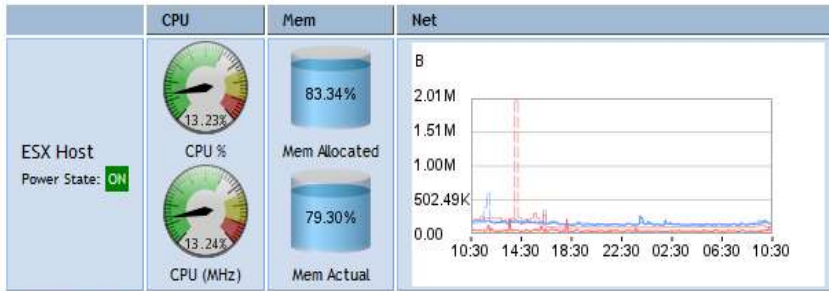
Service Management

Portals Management

Fault & Event Management

Configuration Management

Open API

Event Notification

Instant Reports

End-to-End Visibility

ICMP · Cisco IPSLA · NBAR · SevOne xStats · XML · SNMP v1, 2c, 3 · IPFIX · Windows WMI · Proxy Ping · Process Monitoring · HTTP Response · Netlfow v5-9 · sFlow · VoIP (Cisco, Avaya) · DNS Response

Virtual Servers · Networks · Physical Servers · Applications · VoIP · Cloud Apps · Any other time-based 3rd party data

Tenants of Big Data
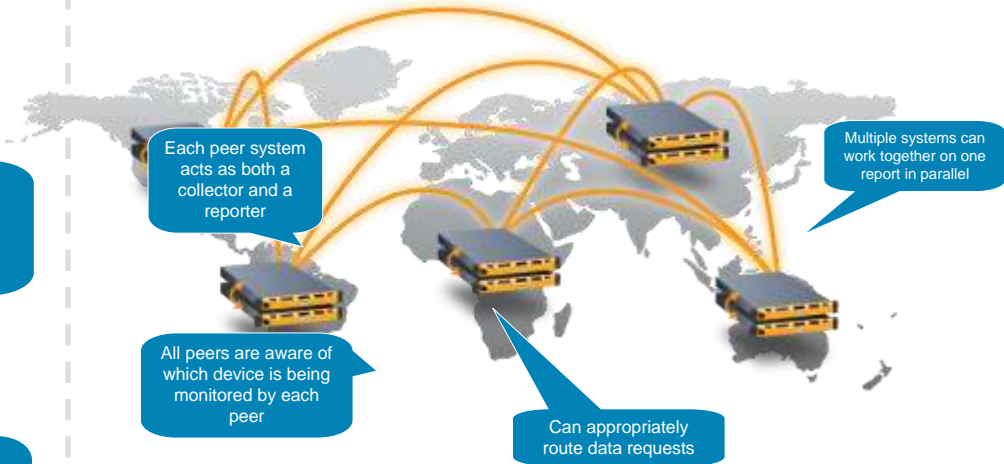
- Distribute ALL Processing – Collection and Reporting
- Push Analytics To The Edge
  - Collectors should be able to participate as peers in analysis and reporting
- Push the Edge to Edge
  - Collectors should be close to data sources for timing, scalability and control data reasons.
- Support Many Data Sources - Normalize Data Early
- Parallelize Everything
- Minimize footprint
  - Bandwidth, Data Center
- Keep it Flat
- Keep it Open

SevOne – Defining BIG Data

.:**SevOne**

PayPal

Total Data Store: 100 TB

Twitter

New Data: 4962 Tweets per second
Peak: 25,000 Tweets per second

Facebook

Queries/sec Peak: 13,000,000
Changed Rows/sec Peak: 3,500,000

SevOne

Existing SevOne Production clusters

New Data per Node (base): 21,000/s
New Data per Node (peak): 200,000/s

New Data per Cluster (base): 2,100,000/s
New Data per Cluster (peak): 20,000,000/s

New Data Volume: 1TB+ / day
Total Data Store: 100TB+

Number of Nodes: about 100

*Combined Xerox and Comcast Clusters are
   processing more new data rows at base
   load than Facebook*

DNC 1000HF (single appliance)
•   15,000,000 Flows / minute
•   4,500,000 rows of data / minute

Source: ITNews – http://www.itnews.com.au/News/317811,twitter-paypal-reveal-database-performance.aspx

Who Uses This?

Telecom & MSP	Banking & Finance	News & Media	Many **Others...**
comcast.	THOMSON REUTERS	Google	CABLEVISION
vodafone	CREDIT SUISSE	HBO	LOCKHEED MARTIN
CSC	Morgan Stanley	TIME WARNER CABLE	U.S.ARMY
xerox	UBS	sparks.	MERCK
verizon	DOWJONES		GOODYEAR

CASE STUDY

- Initial Capacity 16,000,000 KPIs / min
- Current Capacity 160,000,000 KPIs / min
- Projected Capacity for Full Deployment 2,500,000,000 KPIs / min
- Cut performance operations cost by over 75%
- Inefficient service based model w/ 8 FTEs replaced by a self-service model w/½ FTE
  - now thousands of self-service users
- SevOne is now Comcast's performance "source of truth" & common communication platform

"SevOne has never failed to identify a potential degradation or outage"

"With SevOne, we now can access real-time reports in seconds that use to take hours"

Thank You