



## Smarter Communications Through Analytics

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# Pulse2012

Meet the Experts. Optimise your infrastructure.

**May 31 – June 1**

Sheraton on the Park Hotel, Sydney

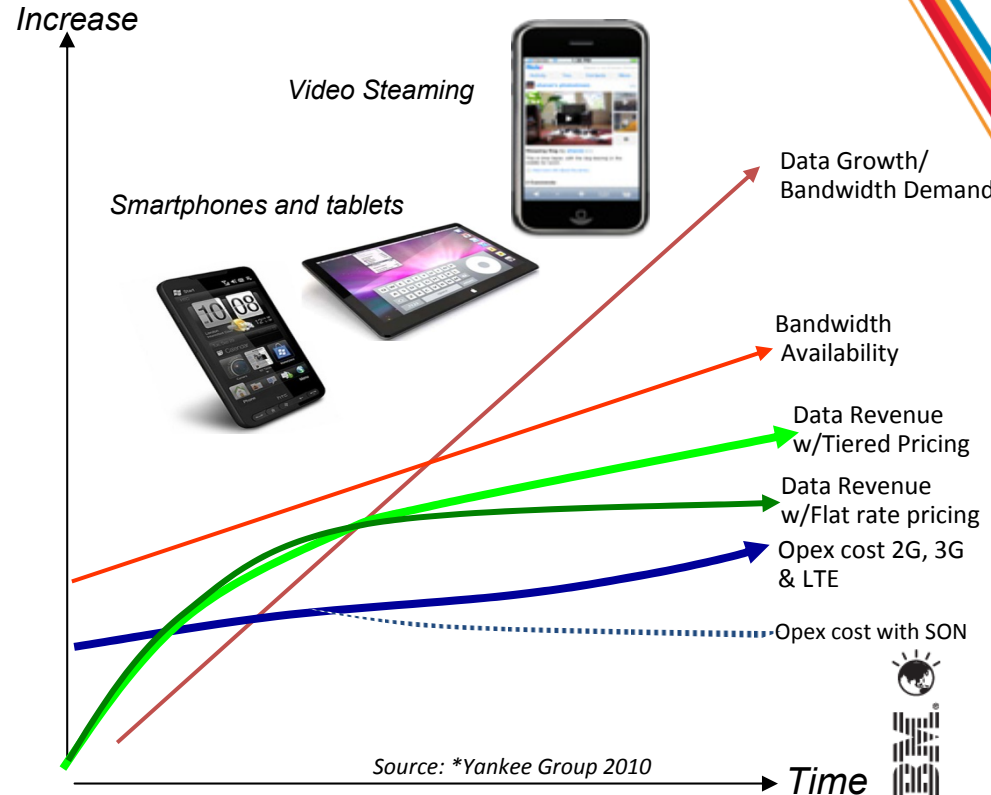


# CSPs need to be able to achieve more with less...

- Traffic growth is expected to grow by 28% thru 2012 however revenue is expected to grow only 15% over the same period\*
- Global Mobile Data traffic will grow 26x over the next 5 years (2015)<sup>1</sup>
- Smart Phone and Mobile Entertainment applications will drive >10 to 30x mobile traffic in next 6 years. Video usage accounts for up to 66% of data growth<sup>2</sup>
- Operators need to identify opportunities to reduce overall investment spend while optimizing quality of service to retain customers and increase Customer Lifetime Value

BUT

- Insight between and across network, service and customer view is fragmented



1. Source: Cisco Visual Networking Index (VNI) Global Data Traffic Forecast, 2010-2015  
2. Source: Client Data, Morgan Stanley Research

# and telco organizations need to collect and analyze a wide range of customer data to stay ahead of the game...

- “What is the most pressing service assurance problem you experience?”
- 35% believes predicting problems before they occur
- 40% believes identifying real time impact on customer experience. <sup>2</sup>



**1 in 3 people** cites the telephone as their preferred channel for customer service <sup>1</sup>



**Half** find it to be the most frustrating way to get help



**1 in 8 respondents** said they would pay for a better level of customer service over the phone.



Among industries, telecom ranked **dead last** for customer service

<sup>1</sup> Ecoconsultancy Survey; B/OSS; September 13, 2011 By Craig Galbraith  
<sup>2</sup> TMForum Survey; Service Assurance, September 2011

# Why is it important to understand customer behavior and experience ?

## *Customer Analytics Imperative*



More Complex Service Offerings



Proliferation of Smart Devices/New Network Technologies



Increasing Customer Expectations



# Introducing the IBM Netcool Network Analytics Solution

*Powering actionable insights*



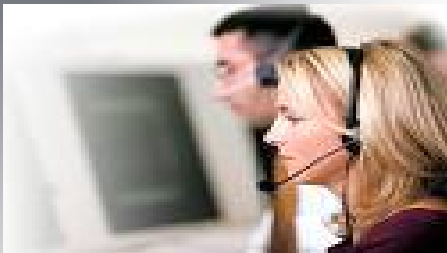
Based on the IBM Network Analytics platform architecture that is proven and referenced, NNA provides actionable insights for telcos to shape business outcomes leveraging Analytics....



# The Value of Customer Insights from Analytics for Telcos

*Analytics has the power to transform the Telco industry:*

## Customer Care And Experience Management



- Customer Retention
- Customer Satisfaction
- Customer Engagement
- Customer Interaction
- Customer Experience Management

## Network Prioritisation And Cost Management



- Investment Decisions
- Customer Centre Optimisation
- Network Optimisation

## Marketing And Campaign Management



- Customer Lifetime Value
- Campaign Optimisation
- Upsell/Cross Sell Analysis

# The Value of Customer Insights from Analytics for Telcos



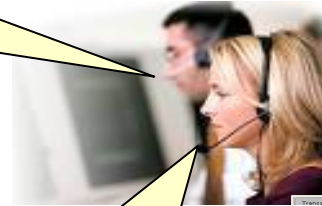
## Front Line Customer Care and Customer Loyalty

- Retention
- Customer Satisfaction
- Customer Engagement
- Customer Interaction
- Customer Experience Management

- Understanding what **motivates the customer** is extremely important to be able to respond appropriately
- Keeping customers **active and engaged** is paramount for customer loyalty and can also lead to increased revenue.
- When customers are treated with **intimacy**, they feel valued, better connected and more informed
- Analytics enable the operator to **innovate** based on changing customer preferences and to adapt in anticipation of changing customer needs.
- Advanced analytics enables operators to turn intangibles, like customer **advocacy**, into measurable and achievable targets

# Front Line Customer Care can sell more services, keep more customers ...

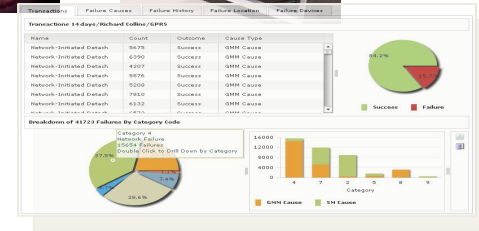
Yes, we know there is a problem with your corporate VPN, and we anticipate it being fixed in 30 minutes.



## Benefit

Displaying an individual customer experience with analytics-based diagnostics, enables the agent to determine next steps towards problem resolution.

Yes, we know there is a cell outage in your area, and due to the inconvenience we will be providing you one day's free service.



## Financial Benefit

- Churn Reduction includes:  
Retained yearly contribution +  
Avoided Acquisition Costs
- Annual Savings: \$32.7M

## Churn Assumptions:

- Subscriber Base: 10,000,000 Split 50/50 Contract/Prepaid
- Churn rate: 3% Contract / 4% Prepaid
- Monthly Additions: 18,000 Contract/22,000 Prepaid
- Revenue: \$125M per month
- Saved Contract Churn/Saved Prepaid Churn: 0.50%

## Customer Retention:

- One time investment: \$350/customer
- Retained monthly customers 2100

\*Netezza Study on Churn, 2011



# The Value of Customer Insights from Analytics for Telcos



- Customer Lifetime Value
- Investment Decisions
- Customer Centre Optimisation

## Network Prioritisation/Cost Management

- Understanding the value of the customer based on spend potential is key to prioritising marketing and investment spend.
- Operators must be clinical in allocation of funds removing all 'waste' and inefficiencies by deployment of smart technology (automation).
- High network costs dictate optimised usage of available bandwidth to ensure a quality experience for individual users.



# Cost Management: margin pressure is the single biggest issue for CSPs today\*

## Benefit

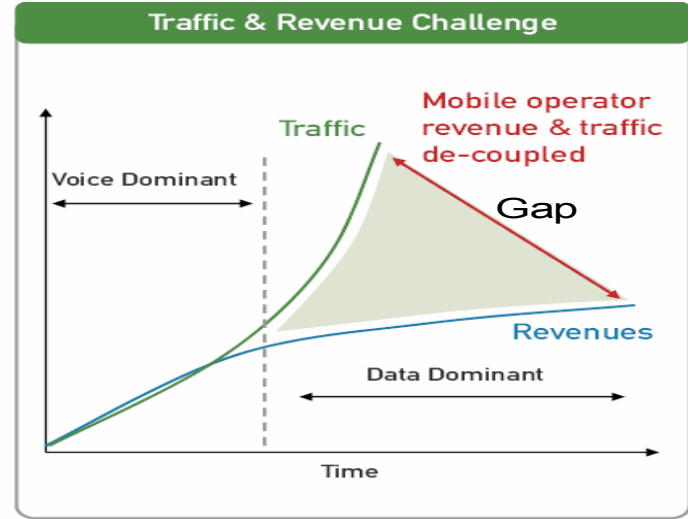
With the growth of data services, particularly mobile data, managing the customer experience is challenging due to finite bandwidth availability.

CSPs then must understand the current value of the customer base, segments and individual customers to make critical CAPEX decisions.

## CSP Financial Benefit

Through appropriate prioritization based on focused customer experience intelligence, CAPEX investment can be delayed or decreased. Assuming 1% CAPEX deferral:

- Annual Savings midsize CSP: \$15.7M
- Annual Savings large CSP: \$60M.



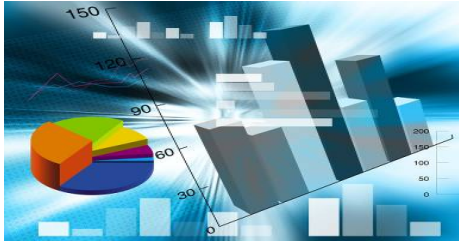
## Assumptions

- Midsize CSP annual network investment: \$1.5B
- Large CSP annual network investment: \$6B
- Annual CAPEX Reduction of 1% through customer experience intelligence

\*Source: Securing a Place in the Changing Messaging Ecosystem, Gabriel Racha, Comverse, GSMA Chart Nov 2009

# The Value of Customer Insights from Analytics for Telcos

## Increasing Customer Spend



- Inbound Marketing
- Campaign Optimisation

- By analysing customer spend and transaction activities, **important insights** can be derived
- These insights are the keys to unlocking **future spend potential** for the operator
- If promotions, price plans and offerings are modified based on the insights discovered, spend **behaviours** can be **altered** to increase revenue.
- Relevant and timely offers can be presented to customers based on **individual interests** analysis.

# Campaign optimization begins with deriving insights on purchasing behaviours using advanced analytics...

## Benefit

Up-sell/Cross-sell opportunities can be identified through IBM Network Analytics Reporting by providing personalized offers through analysis of customer activities, transaction and interaction resulting in increases in ARPU and the retention of existing customers.

## CSP Financial Benefit

1 successful campaign could equate to:

- \$10M in a midsize carrier; or
- \$90M in a large carrier

This month's IBM Network Analytics "Up-Sell Opportunities" report shows 50,000 subscribers have upgraded to a video phone.

We can get a list of these customers and create a web/mail campaign.



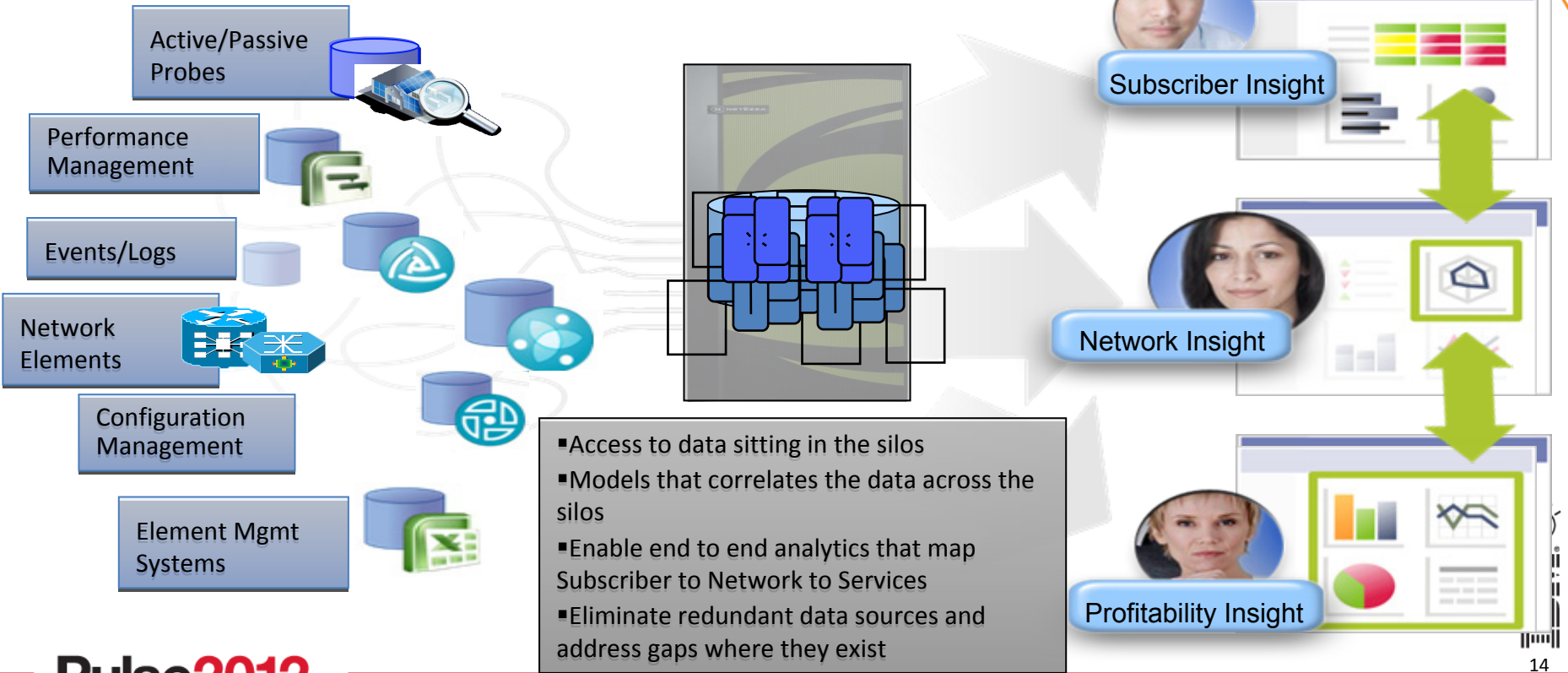
## Assumptions

- Midsize carrier having 10M subscribers
- 1 successful campaign
- Achieving a 10% penetration
- Increasing ARPU by \$10 per customer

# The Netcool Network Analytics Solution

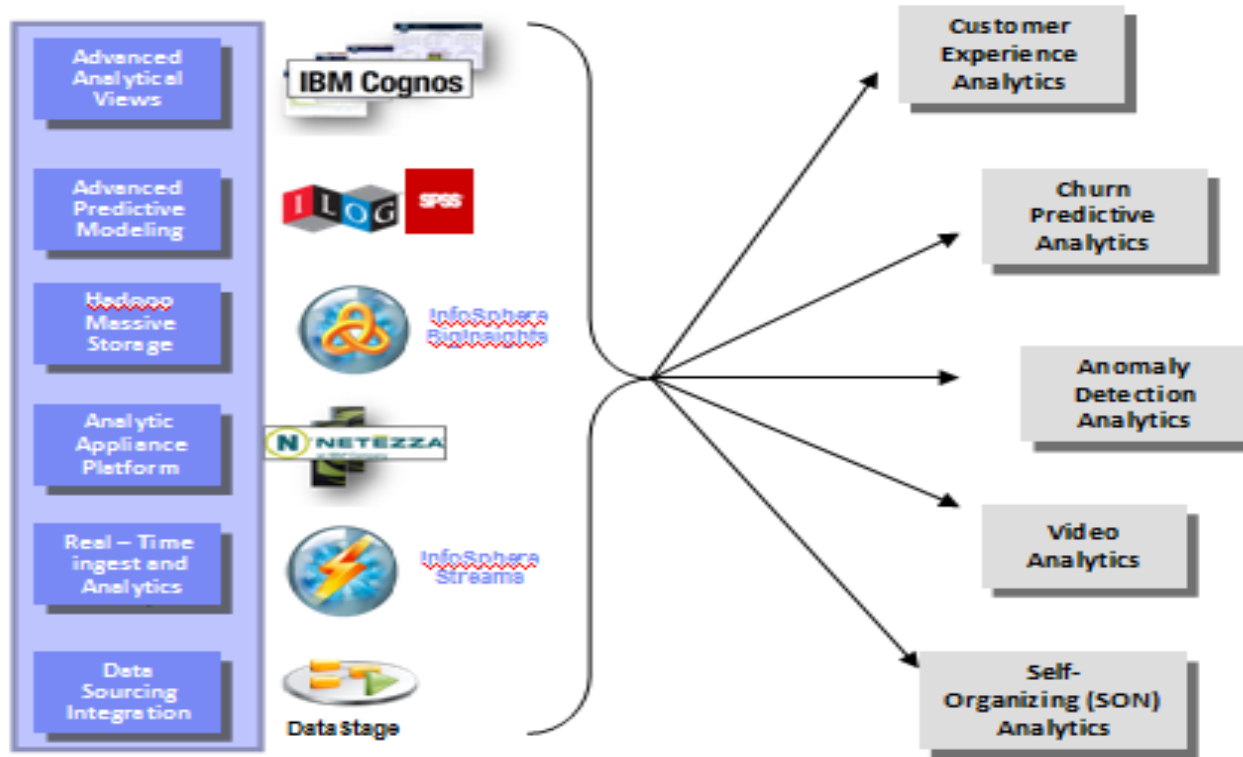


# Netcool Network Analytics – consolidates a myriad of data into one central analytic warehouse



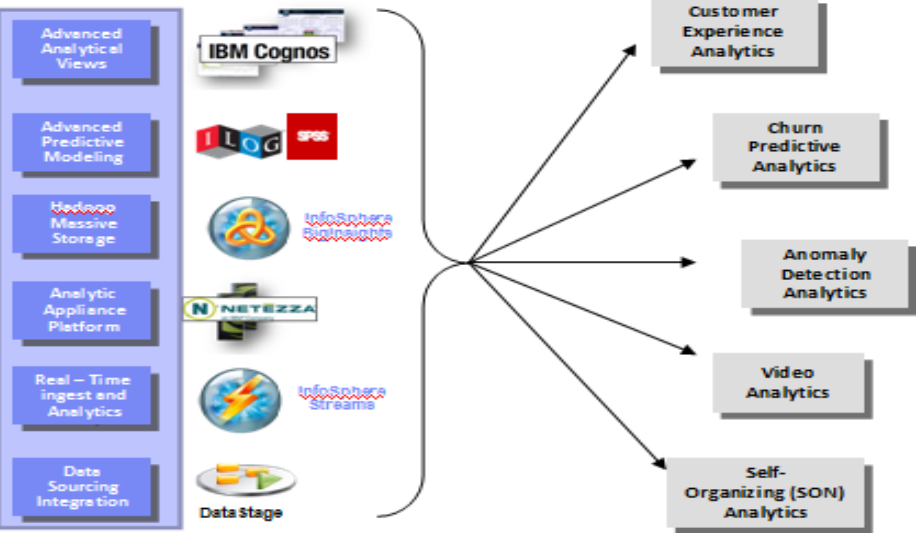
# Based on IBM's Investment in Big Data Analytics

## Advanced Analytics Platform

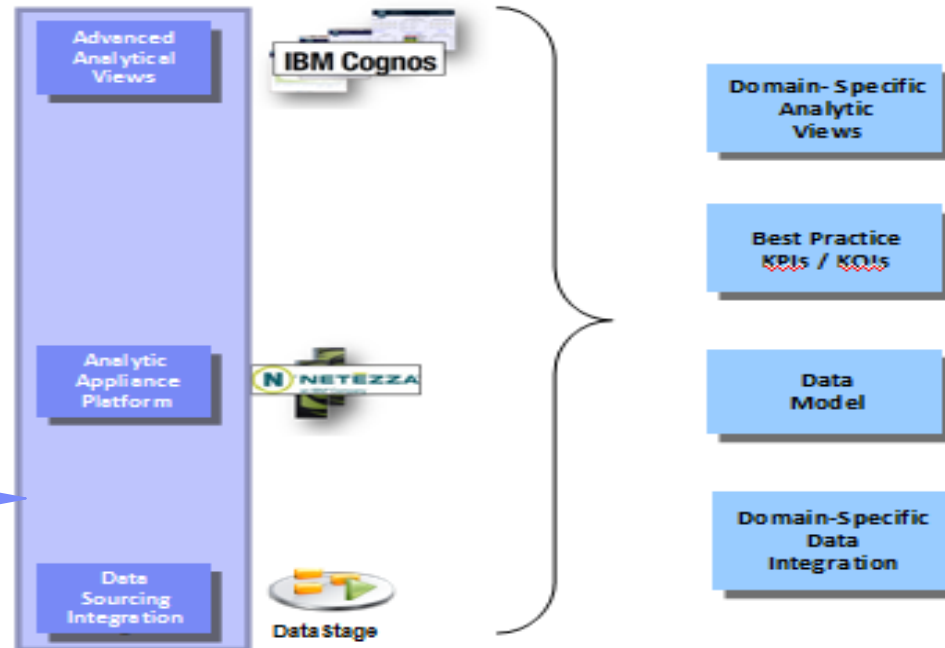


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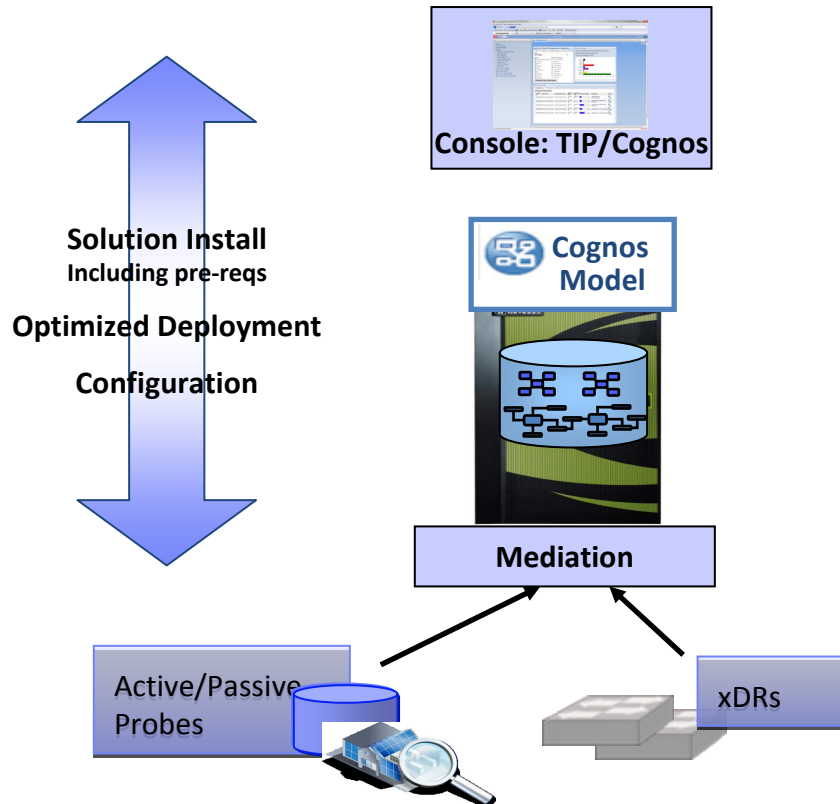


## Netcool Network Analytics





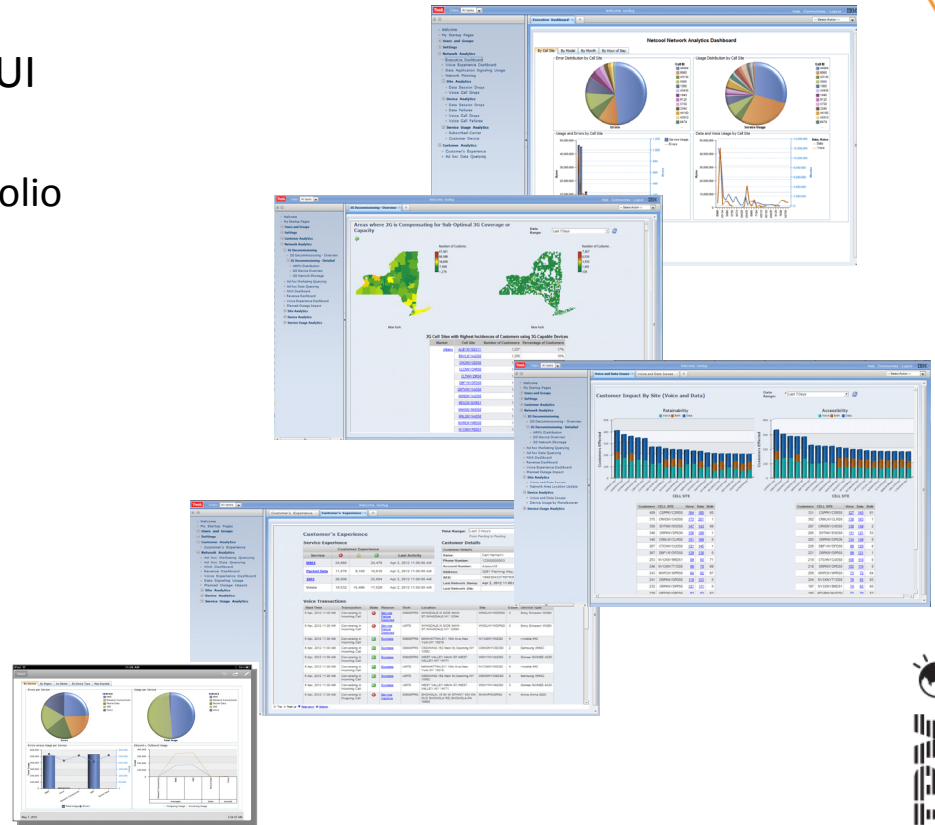
# Netcool Network Analytics Solution



- TIP Role-Based Console
  - WebSphere App Server
- UIs based on Cognos 10.1.1
  - Highly Customizable
- Core Dimensional Model
  - Highly Optimized Cognos Model
  - Services: SMS, MMS, Voice and Data
  - PM/SQM Model for Wireless Technologies
  - Extensible
- DataStage for scale and extensibility
  - Support normalized interface
    - 3rd party integration

# End User Capabilities – Based on Cognos

- Role-Based Console with Interactive UI
  - Scheduled Reports
  - Integrates with Tivoli's Netcool Portfolio
- Dynamic Dashboards
- Mobile Device UI Support
  - iPad App
  - Mobile Browser
- Ad-hoc data analysis
  - Save for future execution
  - integrate into reports
- User Specific Notifications
  - SMS, email, etc



# NNA Leverages the Power of Netezza



Netezza 1000™

**The true data warehousing appliance.**

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- Purpose-built analytics engine
- Integrated database, server and storage
- Standard interfaces
- Low total cost of ownership
- Speed: 10-100x faster than traditional system
- Simplicity: Minimal administration and tuning
- Scalability: Peta-scale user data capacity
- Smart: High-performance advanced analytics

# IBM Netezza 1000



	1000-6	1000-12	1000-24	1000-36	1000-48	1000-72	1000-96	1000-120	C1000-n
S-Blades	6	12	24	36	48	72	96	120	8-80
CPU Cores	48	96	192	288	384	576	768	960	32-320
FPGA Engines	48	96	192	288	384	576	768	960	32-320
Nominal Capacity (TB)	16	32	64	96	128	192	256	320	128 TB per cab
Effective User Data Space (TB)	64	128	256	384	512	768	1024	1280	1 - 10 PBs

## Predictable, Linear Scalability throughout entire family

Nominal Capacity = Uncompressed raw disk space  
 Compression = 4x (estimated; actual rate data dependant)  
 Scan Speed 1000 = 145 TB / hour x number of cabinets  
 Scan Speed C1000 = 40TB / hour x number of cabinets

Load Performance up to 5 TB / Hour



# Industry Leading Data Integration for the Enterprise

Simple to design - Powerful to deploy



## Rich capabilities spanning critical dimensions

### Developer Productivity

Rich user interface features that simplify the design process and metadata management requirements

### Transformation Components

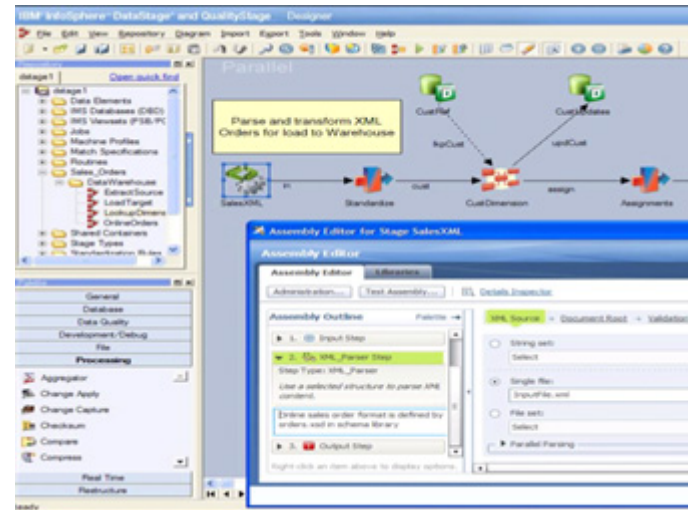
Extensive set of pre-built objects that act on data to satisfy both simple & complex data integration tasks

### Connectivity Objects

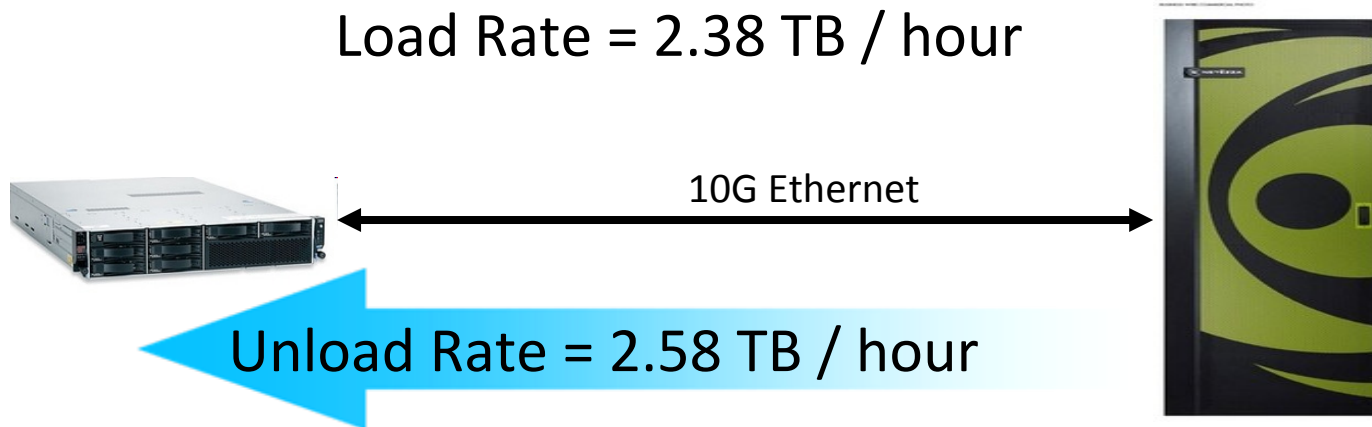
Native access to common industry databases and applications exploiting key features of each

### Runtime Scalability & Flexibility

Performant engine providing unlimited scalability through all objects tasks in both batch and real-time



# InfoSphere DataStage and Netezza System Topology



## InfoSphere DataStage Server (Intel® Xeon® E7-4870)

- OS: Red Hat EL 5.3 x86-64
- Processor Type: Intel® Xeon® E7- 4870, 40 cores/80 threads
- Processor Speed: 2.4GHZ
- Memory Size: 1 TB RAM
- Disk Space: 2 TB total disk space
- Network Card: Intel® 10 Gigabit CX4

## IBM Netezza 1000-12 Appliance (TwinFin-12)

- 12 S-Blades
- 96 CPU cores
- Processor: Intel® Xeon® E5520 2.27GHz
- Storage Space: 128 TB\*  
\* @4x compression ratio
- Network Card: Intel® 10 Gigabit CX4
- 63 writer option enabled

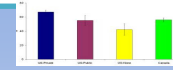
# NNA Data Model Highlights

## Data By

- Time
- Trend
- Failure Type, Category & Detailed Cause.
- Geo-Location: Cell ID, Site, Market, Region
- Location Area & Routing Area
- Network: 2G/3G/4G & NEs
- Device
  - Manufacturer & Model & Version
  - Signalling Capability
  - Customer Facing OS & OS Version
  - Application
- Carrier (incl. Roaming & MVNO)
- Direction
- Call Type (e.g. National/International)
- APN
- Content Type (MMS)
- URI/Domain & OTT Provider
- Customer Contract Vendor, Tenure, Rate Plan & ARPU
- Individual Customer (Subscriber)
- Customer Group/Segment
- Churn Propensity

## Service Usage

- Voice Call
  - Attempts & Successes
  - Minutes
- Erlangs
  - Avg. Duration
- Data
  - Volumes (min, max, avg)
  - Emails, File Transfers, HTTP/WAP Activity
- SMS & MMS Attempts & Successes



## Service Quality

- Voice Call
  - Setup Success Rate & Duration
  - Answer Rate
  - Drop Count, Rate, Frequency
- Short Calls
- Data
  - Attach Success Rate
  - PDP Cxt Activ. Success Rate
  - Rate Negotiation
  - Drop Frequency & Avg Time to Reconnect
  - Emails, File Transfers, HTTP/WAP transaction Success Rates
  - Response Times
  - Data Rates.
- SMS & MMS
  - Success Rates for send & receive.



## Radio Quality

- Location & Routing Area Update Success Rates
- RAB Establishment & Modification Success Rates



# Network Analytics Offering Highlights

- Telco Wireless Customer Analytics focused on Core Services (Voice, Data, SMS, MMS)
  - CDR/Probe Data Mediation
- Linux-based Solution
  - Common Install
  - Includes all pre-req products
- Shared Console with other Tivoli Products
  - Single Sign-on
- Leverages Netezza for Scale
  - Includes DB2; Cognos Content Store and DataStage MetaData Model Store
- DataStage for Data Integration and Scale
  - Network Data, e.g. Probes / CDRs
  - Dimensional Data, e.g. Inventory
- Integrates with LDAP for User Repository

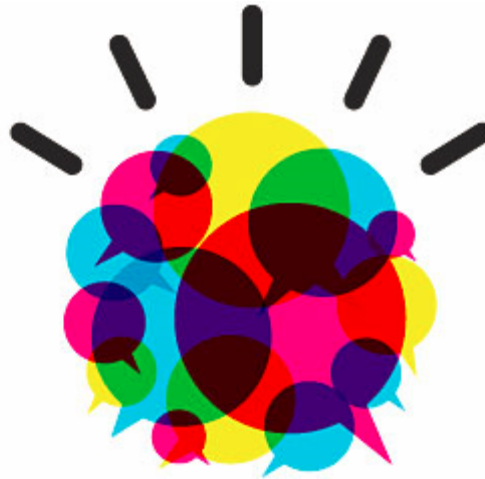




**Thank You!**

**Stop by the Expo for further questions and a demonstration**

## **Smarter Communications**



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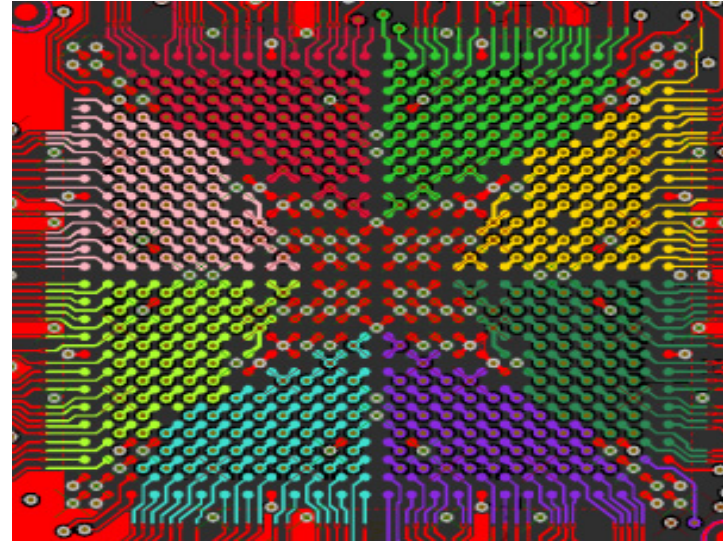
# Netezza's Exceptional Advantage

## The Field Programmable Gate Array (FPGA)

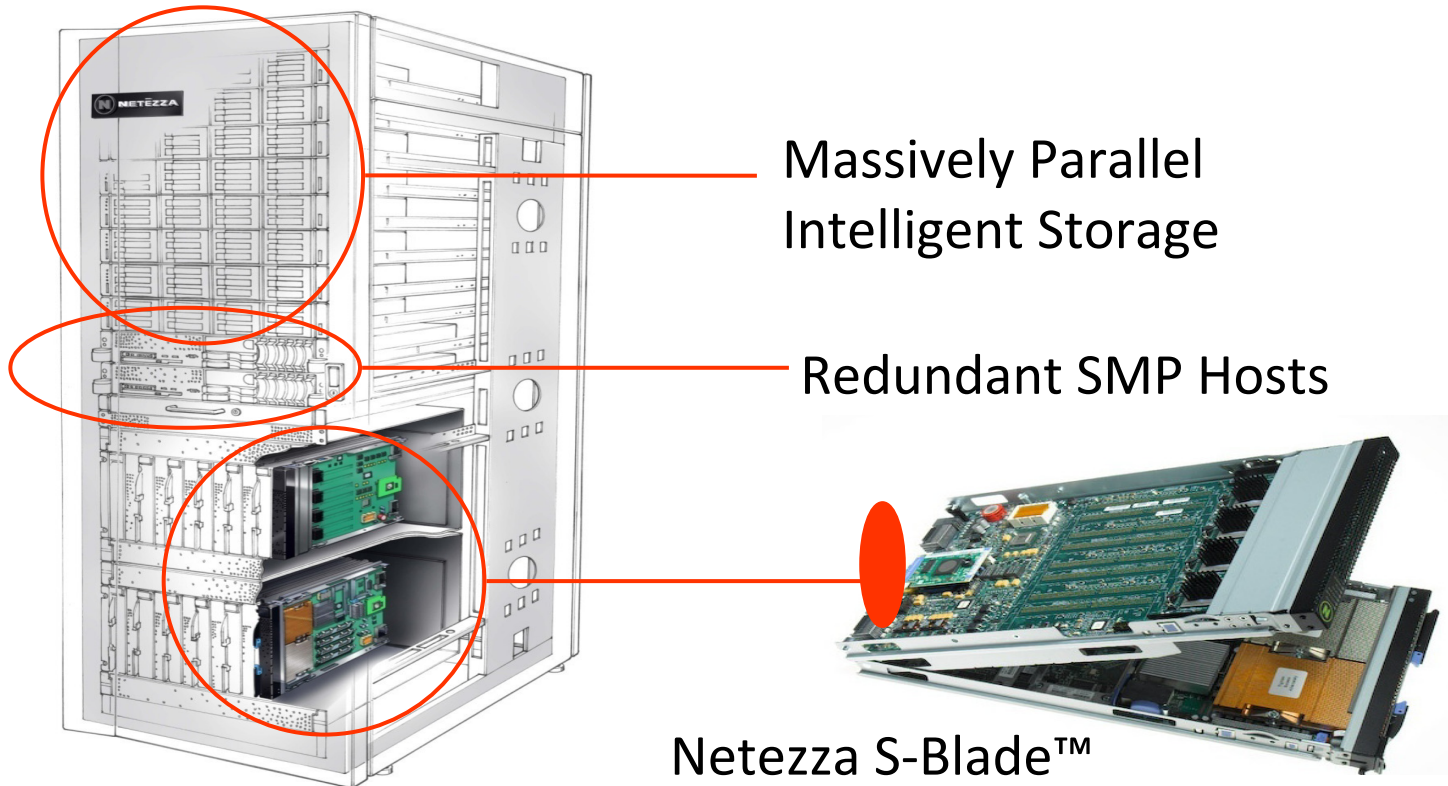
- ✓ A Real-Time silicon SQL accelerator
- ✓ Dynamically reprogrammed for each individual query
- ✓ Eradicates 90% of system I/O before the CPU ever sees it
- ✓ Completely unique to Netezza

The FPGA *eliminates* the need for:

- Unmaintainable Indexes
- Complicated Partitions
- Manual Compression Schemes
- Inflexible Results Caching
- Expensive Cubing
- Complex Materialized Views



# Major Netezza Components



# What is IBM's Netcool Network Analytics?



**Integrated Analytics Solution** for CSPs that provides *customer, network, service and device insights* throughout the enterprise, that is simple to deploy with a time to value measured in weeks.

Integrated Console

Advanced Analytical Views

Best Practice KPIs/KQIs

Data Model

Analytics Appliance Platform

Data Sourcing and Integration

