Big Data and Mobility

Michael Darren
Technical Account Manager, Telco and Service Provider Area

mdarren@netapp.com

Who is NetApp?

- NetApp is a global provider of software, systems, and services to manage and store data

Software

Automation and Integrated Data Management

Data Protection

Object Storage

Storage Operating Systems

Cloud and Storage Management

Storage Virtualization

Secure Mobile Access

Systems

Hybrid Arrays

All-Flash Arrays

Converged Infrastructure

Private Storage for Cloud

Backup to Cloud

Services

Strategy Services

Design Services

Deployment Services

Operational Services

Support Services

Training Services

© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only

Big Data Challenges

1 Data growth

Kilobyte
Megabyte

Terabyte
Gigabyte

Exabyte
Petabyte

Yottabyte
Zettabyte

2010 - 2015
800%
Growth
(Gartner)

Systems of Record → Collaborative Networks → Personal Devices → Audio and Video

2 System performance and scalability

3 Leveraging the data

NetApp

Industry Projections

Some interesting statistics

Connected Devices

- Installed base of the Internet of Things (IoT) to reach approximately 212 billion by 2020. (1)

Data Locality

- By 2018, 40% of IoT-created data will be stored, processed, analyzed, and acted upon close to, or at the edge, of the network (2)

Shift from wired to wireless

- By 2017 traffic from mobile and wireless devices will exceed that of wired devices, anticipated to be 55% versus 45%. (3)

Analytics adoption

- By 2017, more than 50 percent of analytics implementations will make use of event data streams generated from instrumented machines, applications and/or individuals. (4)

(1,2) IDC: Internet of Things Predictions 2015, (3) Cisco: The Zettabyte Era 2014, (4) Gartner- Predicts Business Intelligence (2014)

© 2015 NetApp, Inc. All rights reserved.

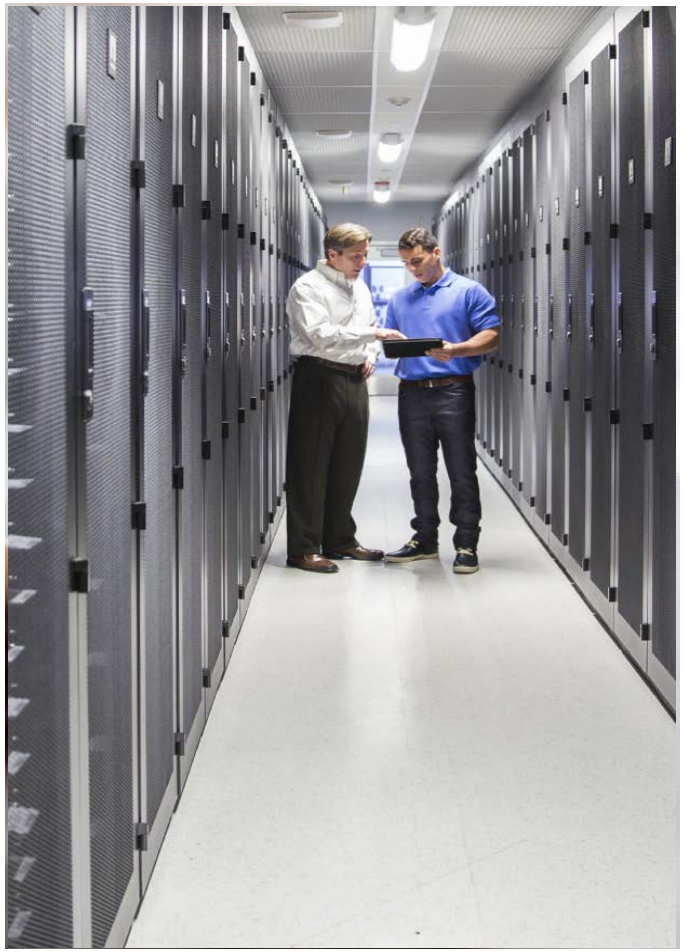
The evolving data management challenge

- Internet of Things is driving decentralized data creation and consumption
- Unstructured data growth driving new approaches to storing and protecting data
- Emerging data architectures required to scale and meet future requirements
- What's valuable? How to analyze? How to monetize?

© 2015 NetApp, Inc. All rights reserved. NetApp Confidential – Limited Use

NetApp

Business Trends



Telecom industry passing through inflection point

- Grow and reduce churn, traditional voice/messaging not generating same revenue
- Drive new revenue, understand usage and needs of current subscribers
- Increase average revenue per user, more customized services
- Proactively maximize overall subscriber experience

Carriers seeking to leverage their data

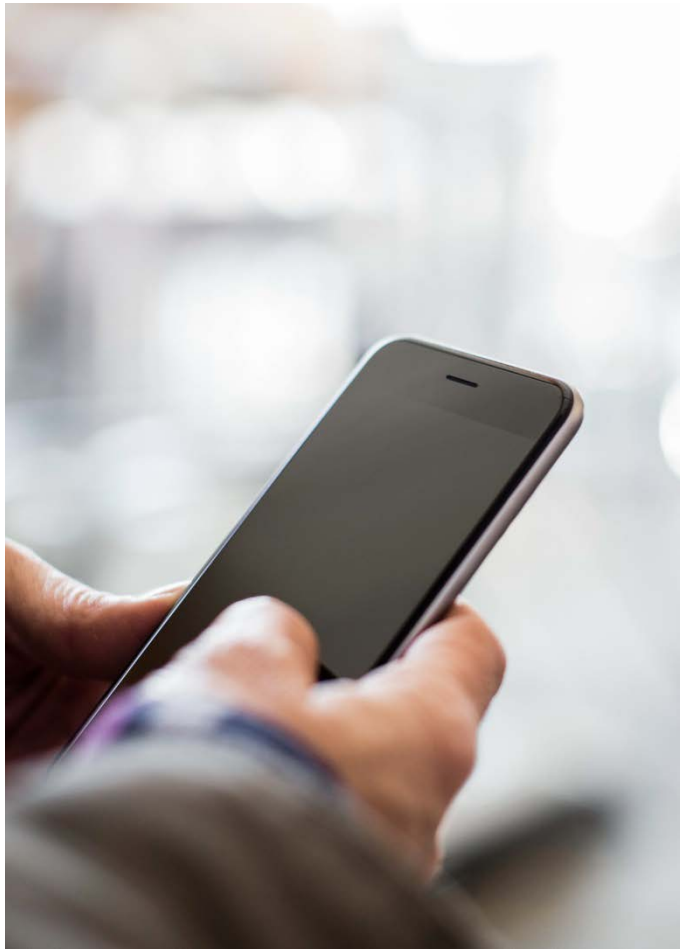
- Improve business operations, minimize costs, optimize service delivery
- Identify new service opportunities, lines of business, monetize whole ecosystem

Big Data analytics a competitive differentiator

- More data + ability to analyze = more power to influence customer decisions.

© 2015 NetApp, Inc. All rights reserved.

Technology Trends



Major shifts in carrier services consumption

- Greater data consumption, less voice
- Faster mobile broadband
- More video on demand

New data sources emerging

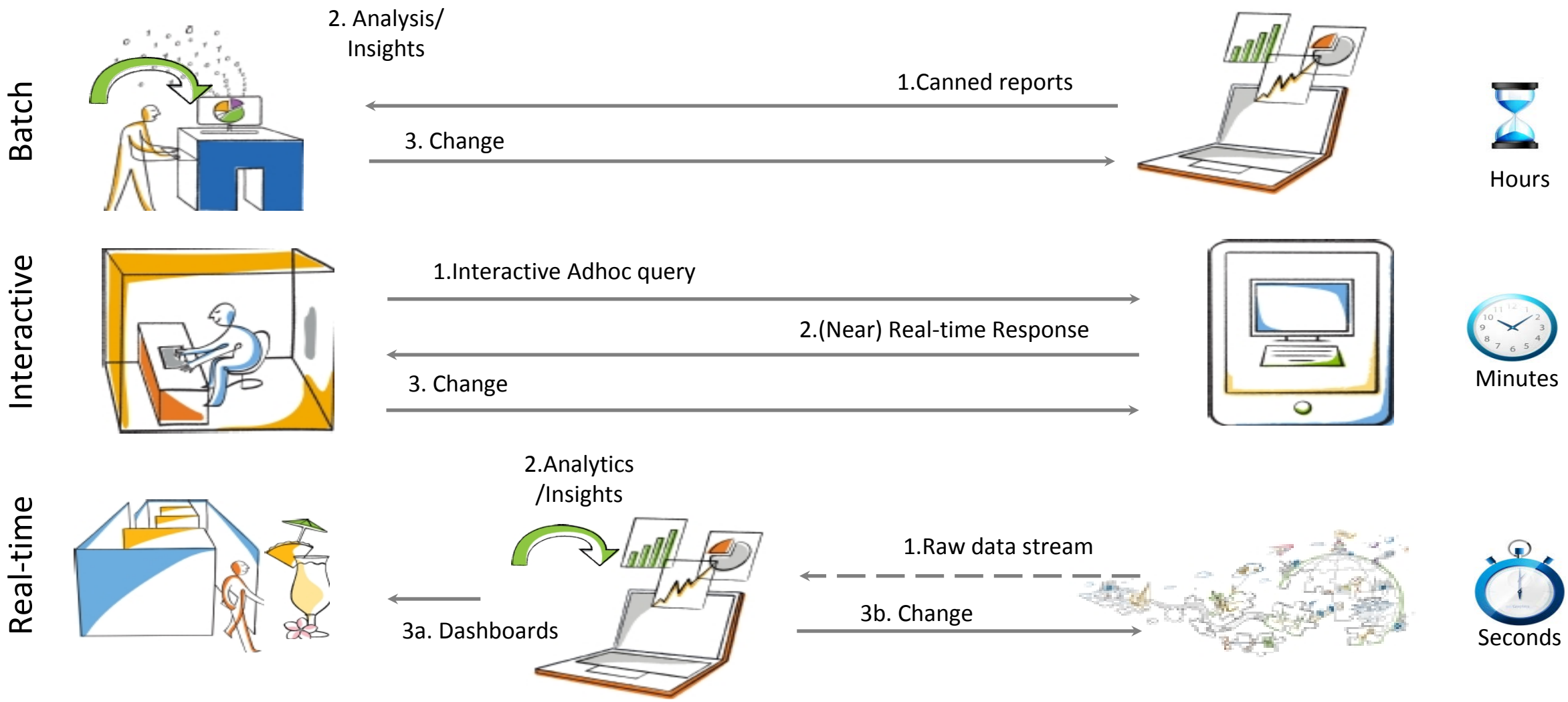
- Expanding beyond traditional billing and mediation sources
- Deep packet inspection, home subscriber server, video optimization equipment, on-device clients, …

Internet of Things

- End devices becoming smarter allowing data collection to better understand customers.
- Providing companies with larger and richer data sources then ever.
- M2M – Big opportunities

© 2015 NetApp, Inc. All rights reserved.

Evolution of Analytics



© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only

Real-Time Analytics and the Emerging Architectures

Analytics becoming increasingly mission critical to business

Real-time analytics drivers

- Ability to capture, analyze, and act on insights immediately while information is relevant maximizes impact to the business.
- Traditional DW/BI architectures produce insights weeks/months after network events can't serve this need.
- Moving from traditional descriptive models to predictive and prescriptive models requires real-time analytics

Unique characteristics of mobility

- Always-on, everywhere, real-time, location and context-aware

Driving new and emerging architectures

- Big Data architectures of today will not be the same in the future

© 2015 NetApp, Inc. All rights reserved.

NetApp

Analytic Data Stores

Unique Storage and Data Management Requirements

TRADITIONAL
DW/OLTP/DSS

NEXTGEN
NOSQL/COLUMNAR

IN-MEMORY
HANA

Unique Storage and Data Management Requirements

Scalability to Cope with Explosive Data Growth

Data Protection and Transport

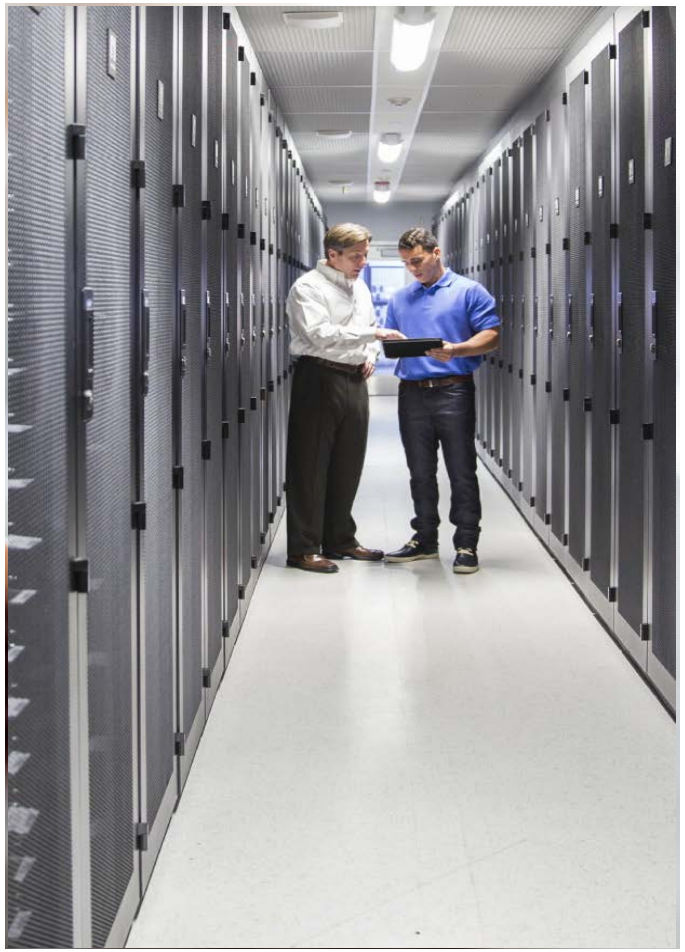
Meet SLA's for Availability and Performance

Comply with Privacy, Retention and Disposal

© 2015 NetApp, Inc. All rights reserved. NetApp Proprietary – Limited Use Only

Looking Ahead

New approaches and architectures required



Challenges with current deployment approaches

- Existing analytics environments often centralized and isolated.
- New data streams often decentralized running at edge.
- Real-time analytics presents a unique set of infrastructure requirements.
- Existing approaches will fail to meet scalability requirements of the future while being grossly inefficient.
- New platform architectures need to be efficient for small-scale implementations while maintaining ability to scale by adding new data sources and applications.
- Full picture of customer experience requires ability to synthesize data from multitude of sources.
- Copying and moving data can be expensive and inefficient.
- Security and privacy increasingly important.
- …but there are solutions.

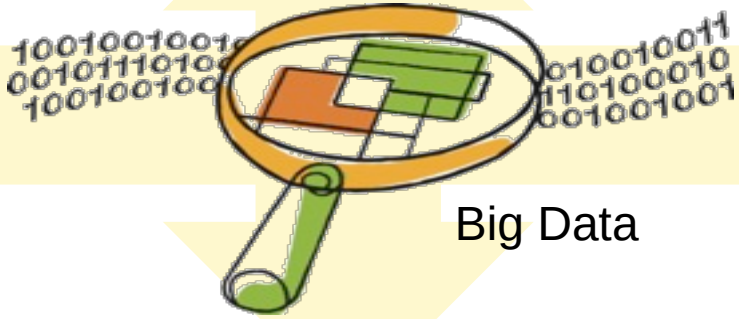
© 2015 NetApp, Inc. All rights reserved.

Thank you

Convergence of Technology Disrupters

Cloud

Mobile



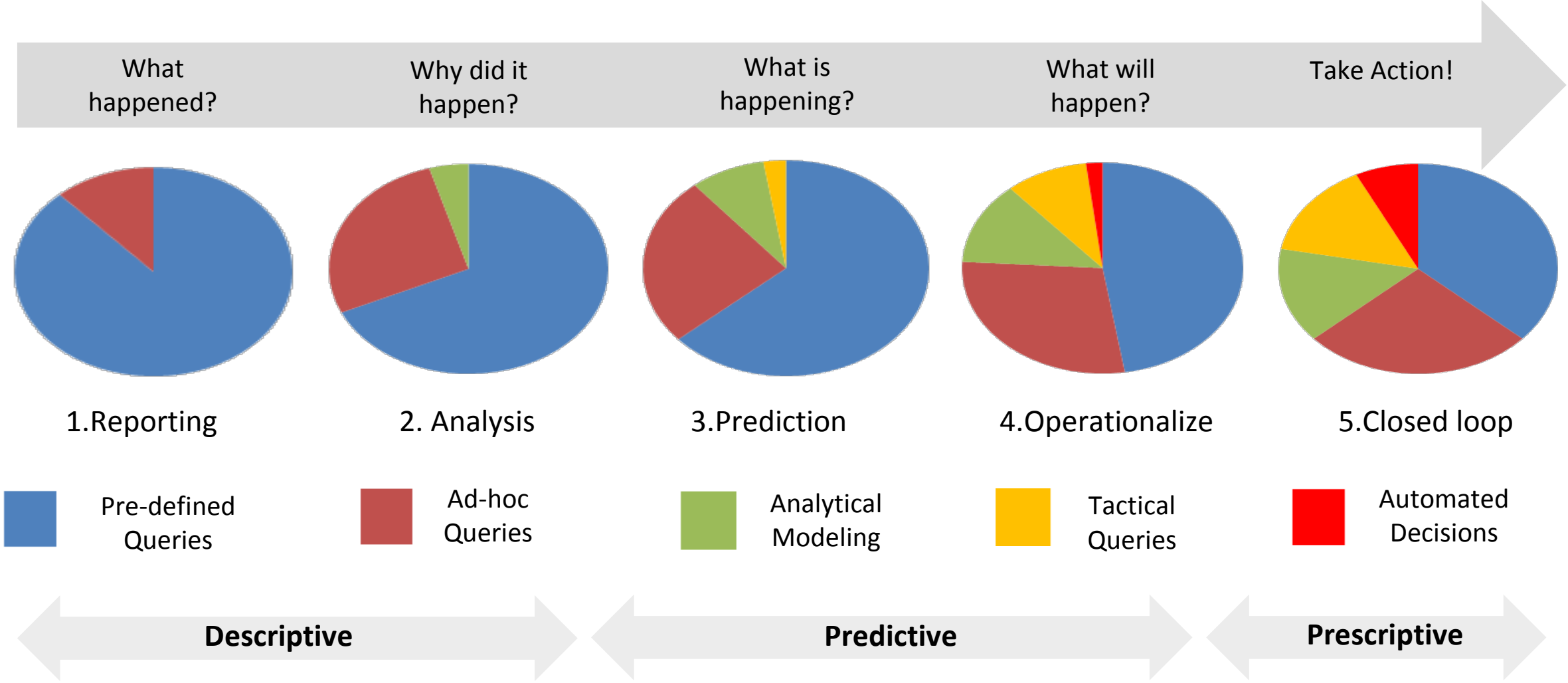
Big Data

Social

Internet of Things

© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only

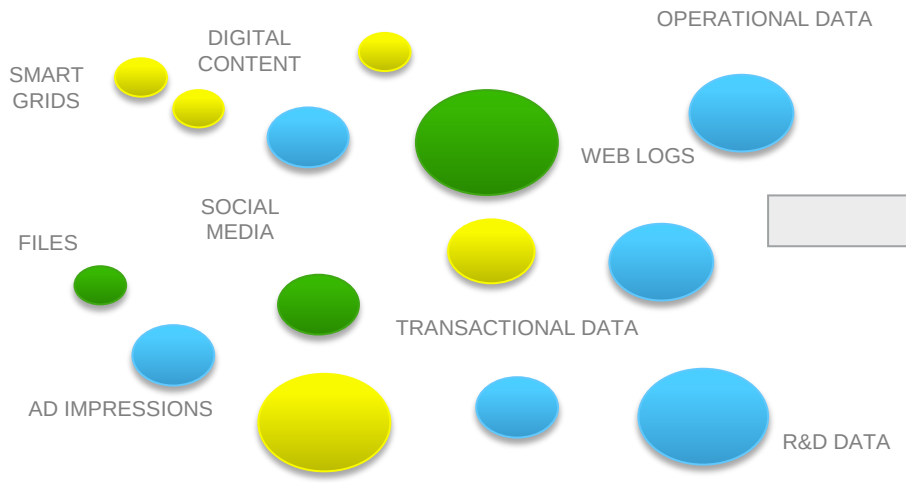
Maturity Horizon of Analytics

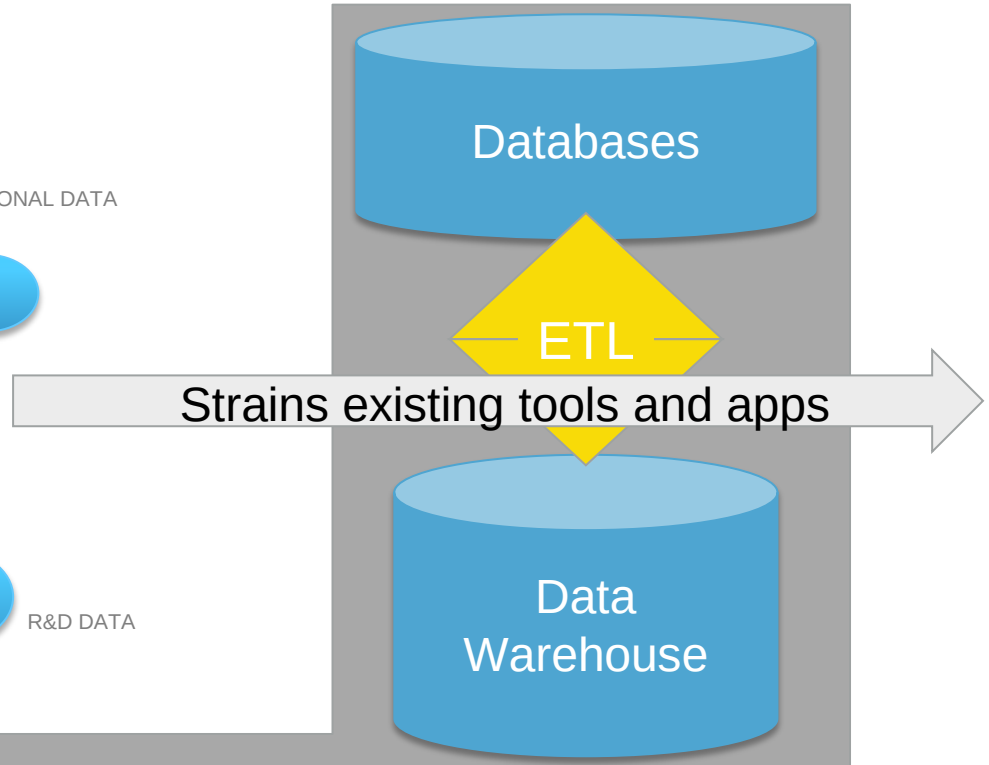


© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only

Big Data Challenges and Customers

New Data Types
Larger Volumes
Faster Data





Business Problems

- ✓ Don't understand customers as well as competitors
- ✓ Detecting patterns in real time is difficult
- ✓ Miss out on cross-sell, upsell revenue opportunities

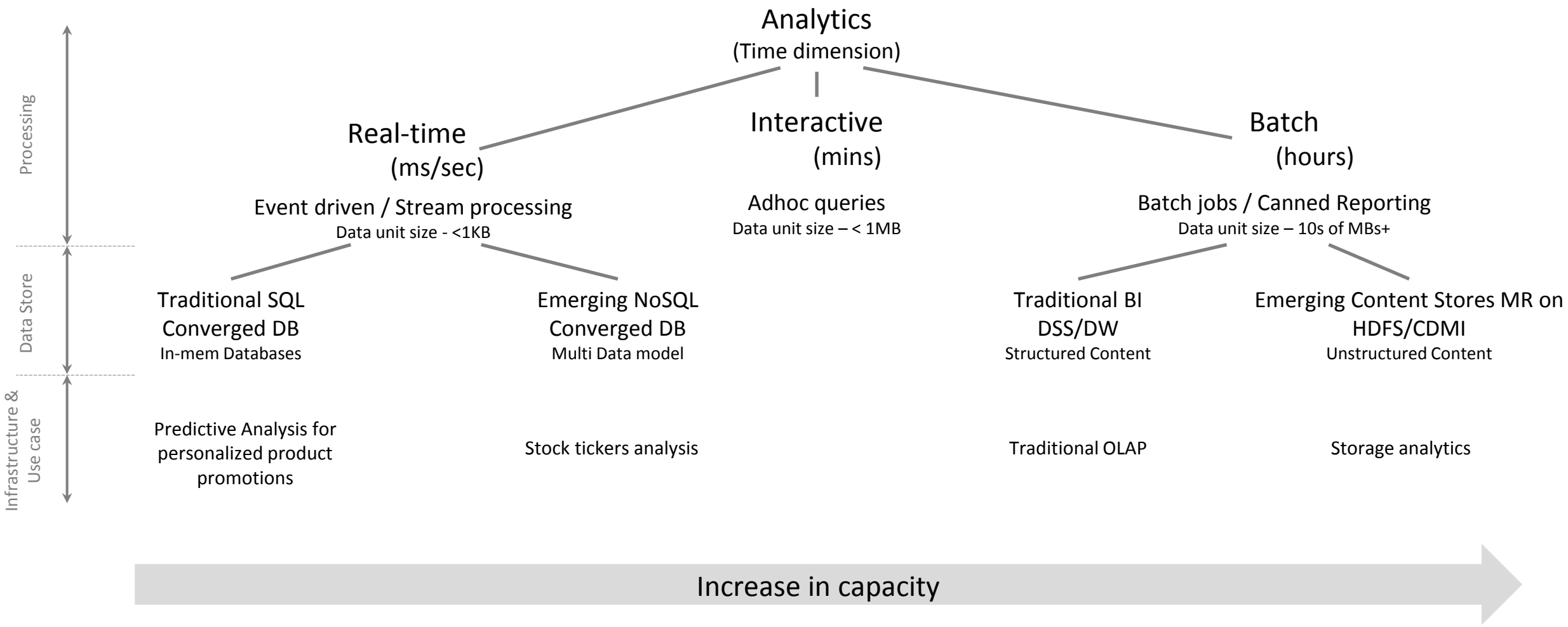
Operational Challenges

- ❑ Can't query databases as efficiently
- ❑ Extract Transform Loads slows down
- ❑ Complexity deploying at scale

© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only

NetApp

Classification of Analytics and Data Stores



© 2014 NetApp, Inc. All rights reserved. NetApp Confidential - Limited Use Only