The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.
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TELCO - The "IT" Prospective

Worldwide Telecom Outlook: 2009–2014

(WW Growth: 3.0%)

Source: IDC Worldwide Telecommunications Services Database, 2H10
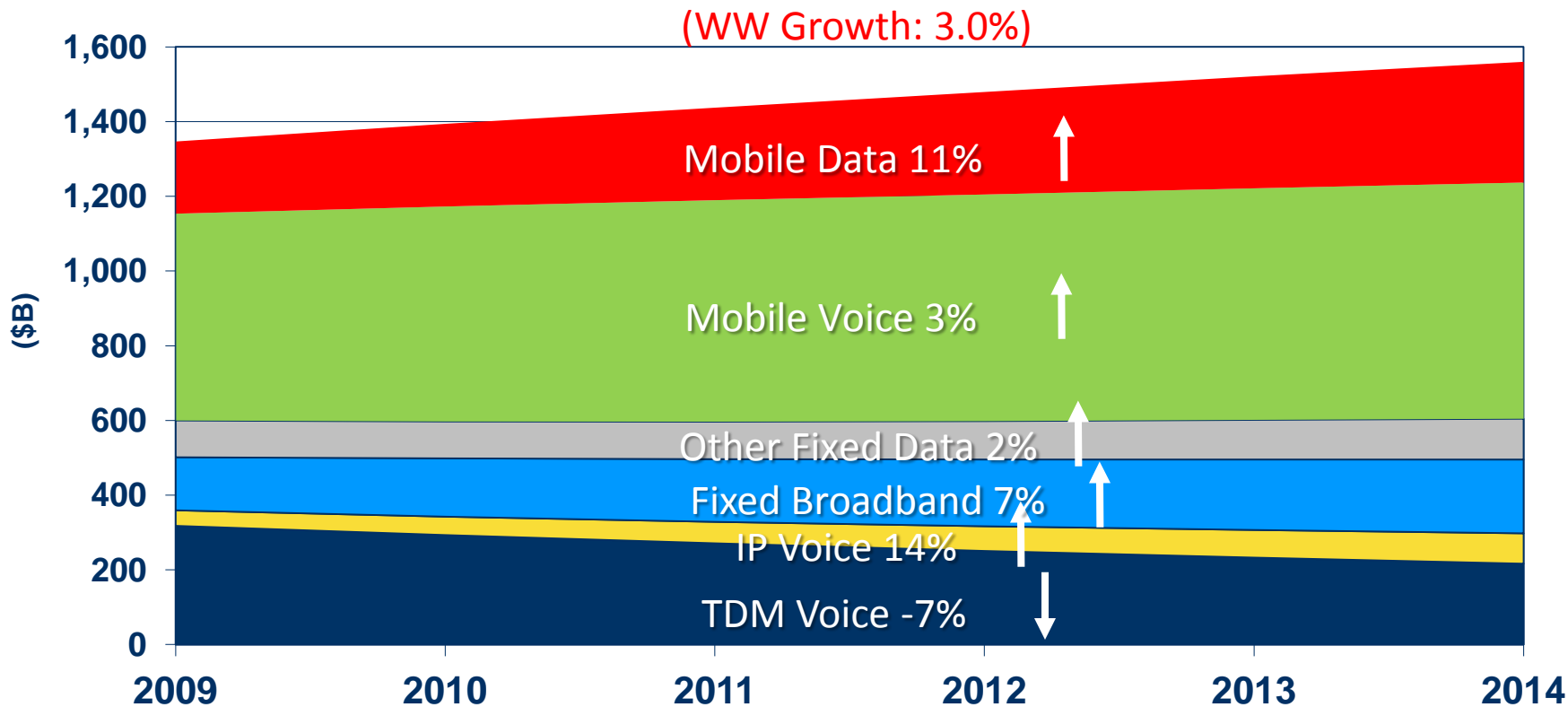
Telecom Strategy Considerations

- Knock-on effects of spending cuts
- investment to increase,
  need to invest in infrastructure to
  beat competition and drive growth
  from potential new sources of
  revenue
- **Pressure on Opex**
- Investment to improve customer
  experience
- **Managed services and
  outsourcing gains pace**

Revenue

- Cloud Computing
- Personal Data
- New Business Models
- Machine2Machine
- SocialLocalMobile (SoLoMo)
- …

OPPORTUNITES

Telco Business

Implementation Limitations

Business

Operational Efficiencies

THREATS

Competition, Regulation

- Standardised solutions
- X-border Governance
- Business Process Control
- Product offer & Bundling
- Cross channel customer
  experience improvements

BITDA
Margin

Communications Strategy Map

Data Management

OSS/BSS Transformation

Customer Experience

Re-engineering

Network Evolution

Innovation

Cloud Computing

Data Models

Personal Data

Big Data Mining

Infrastructure Sharing

Modernisation

Standardisation

Rationalisation

Custom to COTS

Bundling

Commercial Catalogue

Convergence

Customer Engagement

Multi-channel

Social Collab

ICT

AppStore

M2M

Service Provider / Broker

Private Cloud

Next Gen Data Center

LTE

Convergence

IMS

4G

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Enanched Telecom Operation Map (eTOM)

	Fulfillment		Assurance		Billing
BSS	Sales	Order Handling	Problem hanfdling	Customer Qos Mgnt	Invoicing / Collections
Customer Care Processes					
OSS	Service Planning & Development	Service Configuration	Service Problem management	Service Quality management	Rating & Discounting
Service Development and Operations Processes					
NSS	Network Planning & Development	Network Provisioning	Network Inventory Mgnt	Network Maintenance & Restoration	Network Data Management
Network Systems Management Processes					

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DIS in Revenue Assurance

Enterprise Data Integration for Risk and Fraud Mgnt
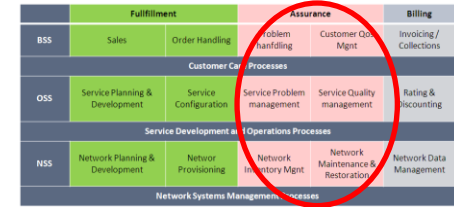
- ## Risk & Fraud Management

  - An effective telecom fraud management process can be a critical element in determining whether a carrier is successful or not.

  - Fraud control process should span between all the critical systems in a Telco, collecting data in order to detect many different types of fraud or revenue leakages, such as Roaming fraud or Interconnect Bypass fraud.

  - Fraud analysts investigate alerts by accessing all relevant information (detailed client/account data, associated Call Detail Records, alert details, client alert history…) needed to conveniently assess the alert

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DIS in Revenue Assurance

Data Collection and Matching are a critical part of Risk and Fraud Mngt Process

Customer Acquisition & Service Provisioning

Network Traffic & Billing

Business Workflow

PoP

PoS

Rating & Charging

Billing

Bad Debt

Back Office

Network Traffic

Mediation

Credit Collection

Justice

EDQ

ODI

GG

Switches & Probes

EDQ

ODI

GG

Account Receivable

Homeland Security

Risk and Fraud Management Process

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DIS in Network Assurance

Data Integration for Network Optimization and Cost Reduction

- **Real Time Network Analytics**
  - Collect newtork data in real-time and correlate with other events e.g. network outages, customer experience feedback (tweets from social networks sites)
  - Probes & Switches Data contributes to a deeper Network Analysis
  - Proactive changes made to fix or even adjust QoS

- **Trend Analysis System for Network Alarms**
  - Quickly detect network alarm locations from thousands network nodes and different source systems
  - Location hidden in unstructured columns detected by data integration
  - Semantic parsing of unstructured data with data quality processes

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DIS in Network Assurance

Real Time Network Analytics

Network Data
Network Outages

ODI

Data
Integration

Semantic
Parsing

EDQ

Location
Intelligence

BI+Spatial

Customer
Experience
Feedback

GG+ODI
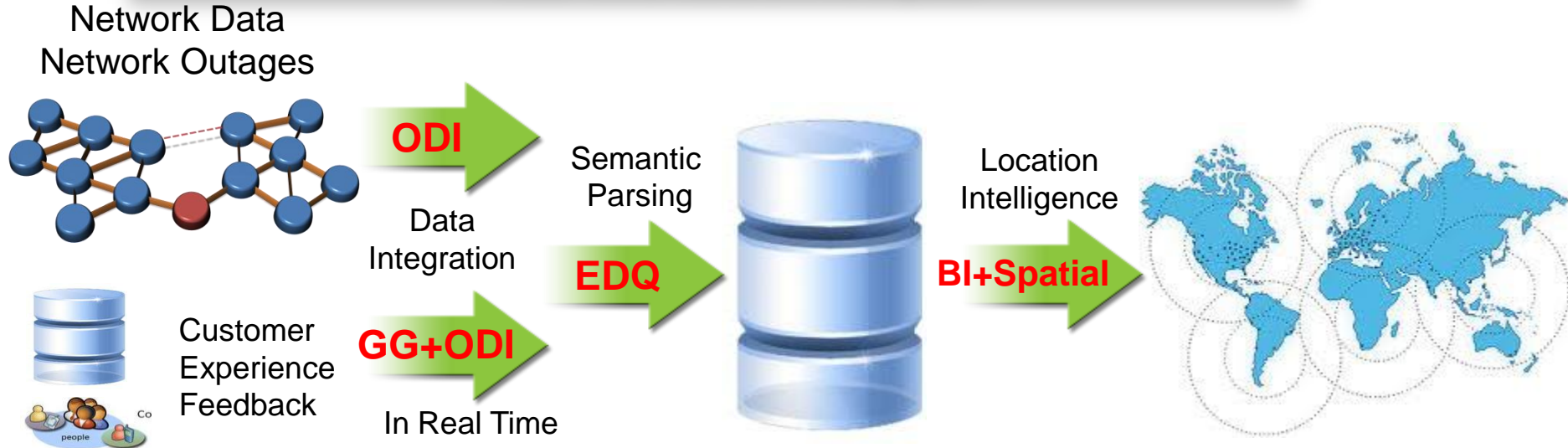
In Real Time

DIS in BSS – Sales & Mktg

When Real Time Integration cares

- Customer Profiling & Sales Enablement with DWH
  - optimizing time-to-market window, publishing data as soon as available;
  - providing a single, "trusted", and complete customer view in order to identify its behaviors and to target most profitable assets;
  - compliance with privacy laws

- CDRs need to be processed and analyzed in near real-time for several reasons:
  - growing volume of call detail records (CDRs) is one of the key success factor of a new service introduction
  - charging, on-line subscriber access to their accounts, and analytics for predicting subscriber usage and preventing fraudulent activity are info detected by CDRs

DIS in BSS – Sales & Mktg

When Real Time Integration cares

Customer Relationship
Management

ODI + EDQ

Batch Feeds, Incremental
Updates and in-DB
transformations via ELT
enrich, clean, DQ firewall
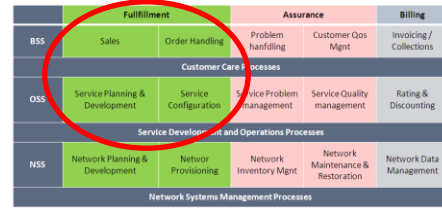
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Non-Invasive Real
Time Transaction
Feeds

BI

- No resource / performance impact to OLTP
- Live data available for better decision making
- Get double-duty from database investment by
  using it for transformations
- No batch windows necessary – key for global
  businesses

DIS in BOSS – OSS/BSS

Enterprise Data Integration

- ## Customer Intelligence
  - Unified/Single view of the Customer for better Customer Intelligence for up/cross-sell and retention offers

- ## Data Sharing
  - Data sharing between new and old OSS/BSS (BOSS) systems for bundled services for fast time-to-market
    - E.g. New ringtone application needs to share data with CRM and billing
    - "Single-bill" requires integration of usage data across different systems
  - Provisioning & Billing systems not always have the correct data in the correct Time

DIS in Service Assurance
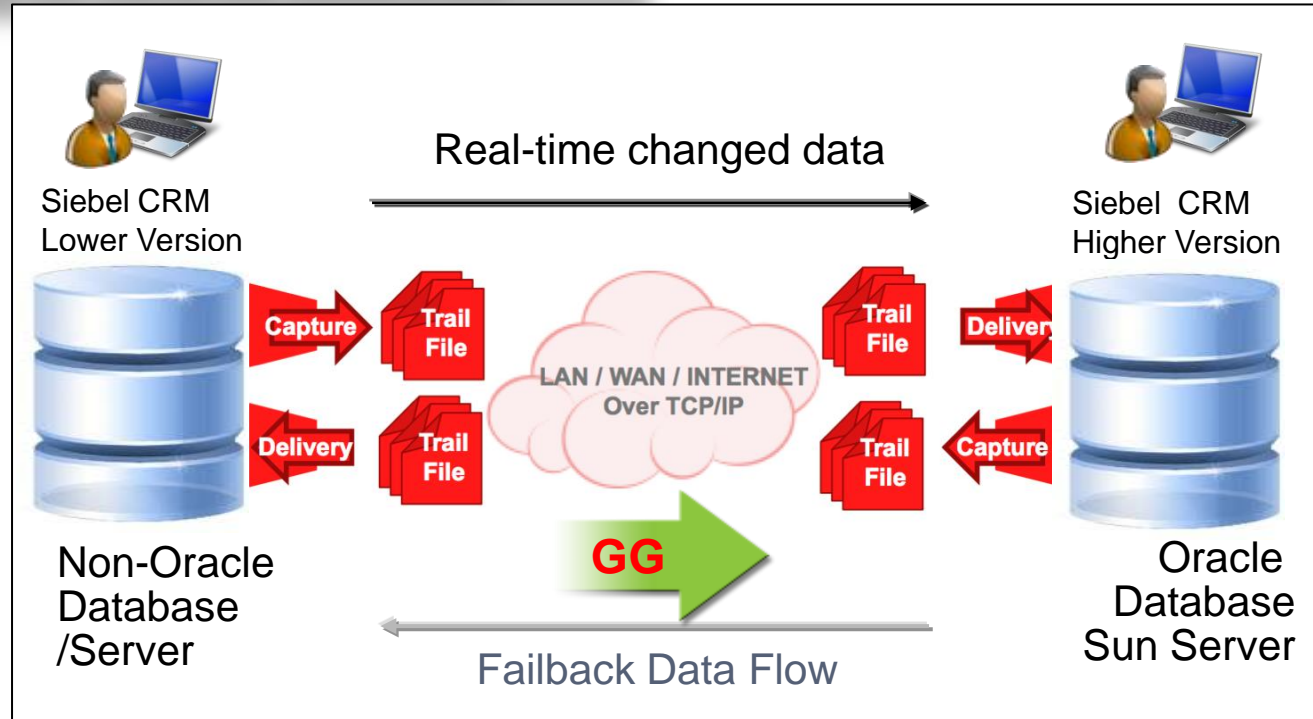

Zero DownTime – Quality for Revenue Assurance

- ## Application Upgrade / Maintenance
  - CRM systems in a Telco are involved all the three principal processes of a Telco: Fulfilment, Assurance and Billing, managing customer information, order entry and order fulfillment.
  - Upgrading, infrastructure renewal or simply migration to a new hw could cause dangerous downtime

- ## Reduce costs with a more accurate Order Handling
  - Incorrect data in Order Mgnt process could be a dramatic loss of revenue and could became a huge cost
  - Accurate and clean data avoid the risk to reject the orders and or re-process them saving time and costs
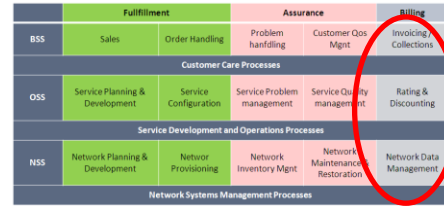
DIS in Service Assurance

Zero DownTime – Quality for Revenue Assurance

- Upgrade/migrate/maintain database, hardware, OS and/or application

- Minimize risk with failback option

- Improve success with phased user migration

Real-time changed data

Siebel CRM Lower Version

Siebel CRM Higher Version

Capture | Trail File | LAN / WAN / INTERNET Over TCP/IP | Trail File | Delivery

Delivery | Trail File | Trail File | Capture

GG

Non-Oracle Database /Server

Failback Data Flow

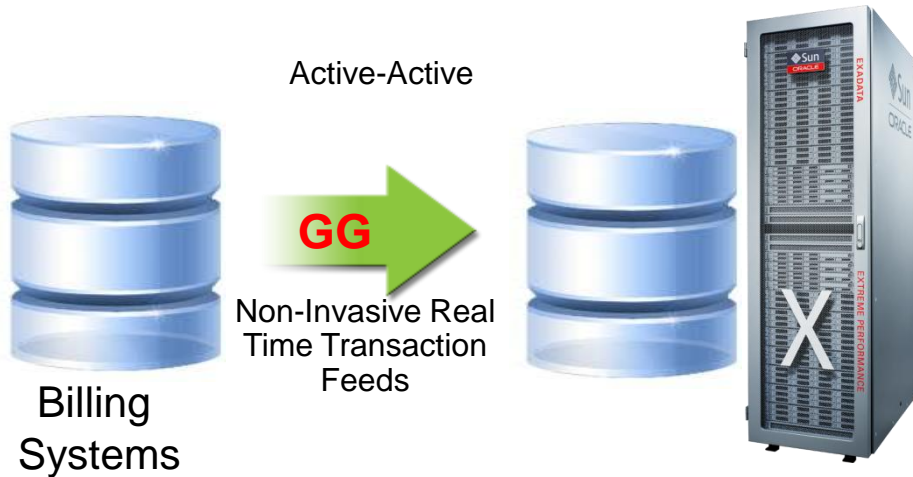Oracle Database Sun Server

DIS in Billing

High Availability & Enterprise Data Integration

- A comprehensive view of Customer spending behaviour
  - Consolidation of dispersed regional customer billing systems
  - Capture of third party hosted customer billing
  - Real Time Data Capture from Billing application
  - Accurate billing for prepaid and advanced voice, messaging and data services such as gaming, conferencing

- Business continuity for Billing System
  - An unplanned downtime could be a dramatic loss of revenue
  - Solutions of High Availability and Disaster Recovery became essential for Billing Systems
  - Upgrading, infrastructure renewal or simply migration to a new hw could cause dangerous downtime

DIS in Billing

Active-Active

GG

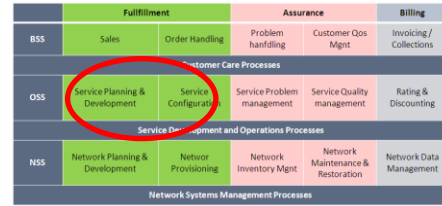Non-Invasive Real Time Transaction Feeds

Billing Systems

Rating and Charging in a Telco Billing Systems could be a very long and high resource consuming processes.

High Availability leveraging GoldenGate and Exadata could reduce time, risks, costs and increase relaiability

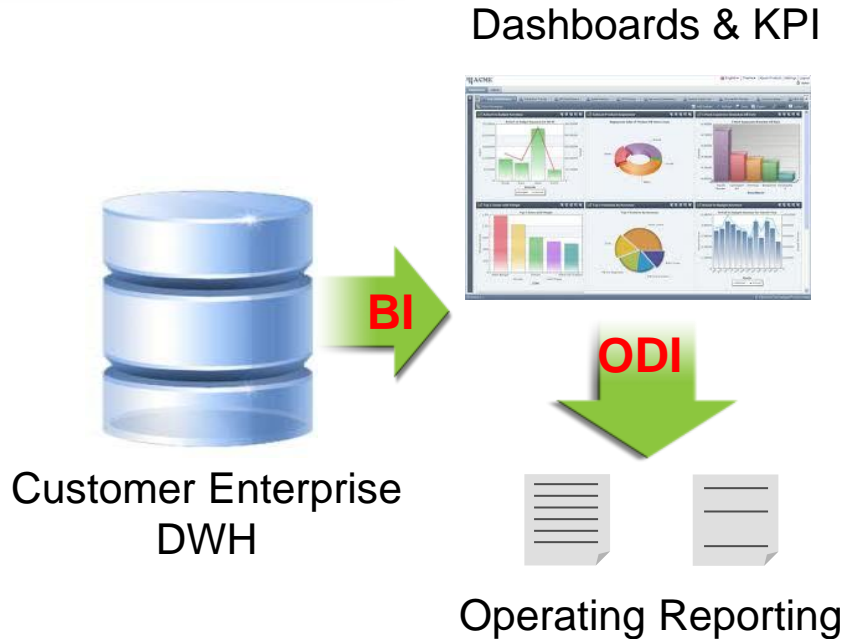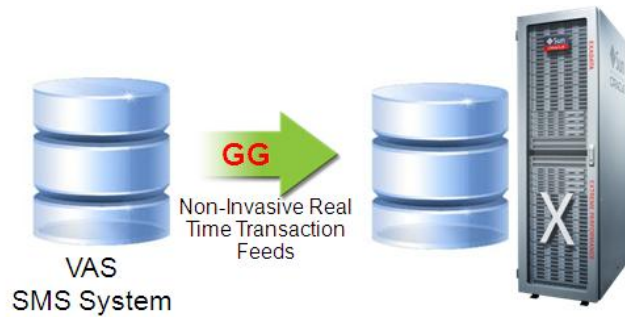ORACLE®

DIS in Service Fulfillment

Operational Reporting & Query Offloading

- A valueable and real-time business copy to address query offloading
  - CRM productivity could be impacted by massive query operations
  - OLTP system could have bad performance
  - Create a real-time replica of existing expensive operational system to route all read-only traffic could be the right solution

- Operational Reporting to increase revenue and save costs
  - Enabled active data warehouse with real-time data feeds from CRM, Billing , Traffic systems
  - ensuring production systems are available and running at optimal performance levels to maximize usage for revenue generating activities, without any reporting linked impacts
  - running resource-intensive reporting on different systems with maximum platform and database engine flexibility,

DIS in Service Fulfillment

Operational Reporting & Query Offloading

VAS SMS System

GG — Non-Invasive Real Time Transaction Feeds

Customer Enterprise DWH

BI

Dashboards & KPI

ODI

Operating Reporting

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Reduced Downtime by 90%
British Telecom

CHALLENGES

- Achieve planned system migrations with near-zero downtime
- Minimize business disruption to eliminate adverse impact on the company's delivery of high speed and next generation telecommunications services to businesses and consumers

SOLUTIONS

- Reduced Downtime by 90%
- Maintained system availability for 40,000 transactions per minute and 2,000 concurrent sessions during the migration of HP-Tru64 to Oracle Linux
- Avoided more than 20 hours of estimated system downtime, while ensuring that disaster recovery capabilities remained in place.

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Real-time BI / Data Warehousing
Turkcell Technologies

CHALLENGES

- Improve its ETL process performance for loading the network operations data warehouse, running on Oracle Database 11g
- The company also wanted to integrate more network operations systems to the data warehouse to offer a global reporting solution for the company.

SOLUTIONS

- Achieved 167% ROI after 9 months by implementing an E-LT architecture
- 20X Performance improvement using Data Integrator on Exadata.
- The combined solution helped the company decrease data preparation time for data mining from 27–29 days to 2–3 days

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Financial sector

Capital Market Industry Trends

- **Explosion in Data Volumes**
  - Move to low margin Flow business
  - New Markets & Fragmentation – globalization & emerging economies
  - Programmatic Access – changing mix of trader vs. computer originated trades
  - Direct Market Access (DMA)

- **Electronic Trading**
  - Latency is the New Battleground - from milliseconds to microseconds to nanoseconds
  - Unique view of the market for each firm depending on location and latency1ms is worth $100 million P&L a year

- **Fragmented Liquidity**
  - More Exchanges, MTFs, ECNs, ATSs, Systematic Internalisers, HFT shops

- **Risk Management**
  - Changing Regulatory Environment (best execution, leg risk, etc.)
  - Running out of capacity to execute calculations within time windows
  - Move to Real-Time Risk as a pre-trade input

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Market Fragmentation
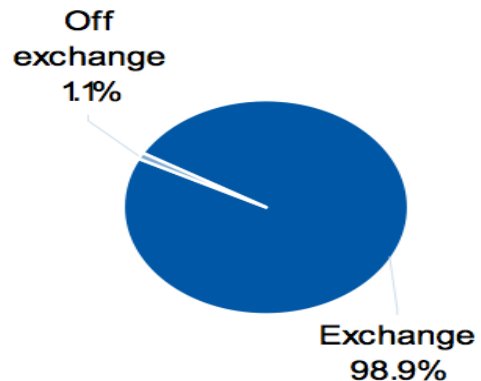
Percentage of Volume US

- Nasdaq 23%
- Off exchange order book/ hybrid 42%
- NYSE 35%
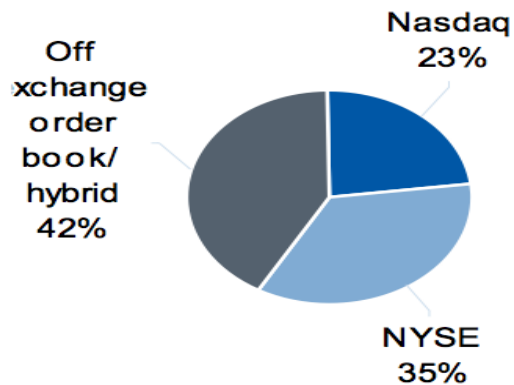
Percentage of Volume Europe

- Off exchange 30%
- Exchange 70%

Percentage of Volume Asia

- Off exchange 1.1%
- Exchange 98.9%

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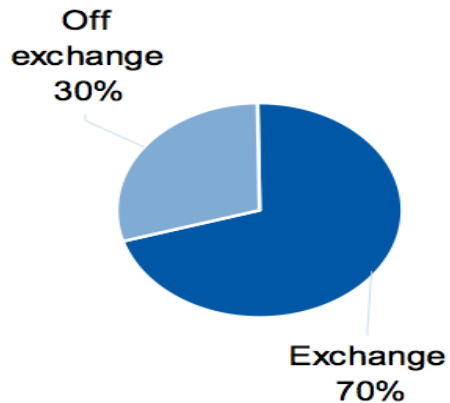
Exchange Latency

Comparison of latency across US and European Order Books as reported by exchanges[1,2]

	Nasdaq (Inet)	BATS	Chi-X	DirectEdge	Euronext (NSC)	NYSE Arca	Deutsche Börse (Xetra)[3]	SWX	LSE (SETS)[3]	NYSE[5]
Best case	250 µs	320 µs		300 µs	150 µs		2 ms	2 ms		
Normal case				500 µs		1 ms		5 ms	4 ms	5 ms
Average		395 µs	350 µs		400 µs		13 ms			

Best performance (<1ms)   Millisecond barrier   Worse performance (>1ms)
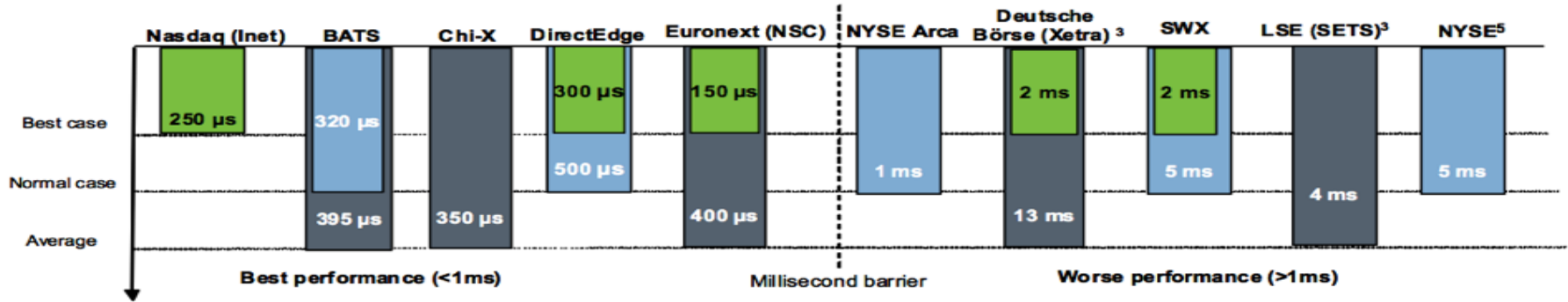
Comparison of latency across Asian Order Books[1,2]

	ASX (Australia)	SGX (Singapore)	NSE (India)	Bursa Malaysia	KRX (Korea)	TSE (Japan)	HKex[4]	TSE (Taiwan)[4]
Best case	Under 1 ms	Under 1 ms				5 ms	2 sec	
Normal case	6 ms		2.5 ms	6 ms	80 ms	3 sec (Pre-Arrow)	15 sec[4]	20 sec[4]
Average								

Best performance (<1ms)   Millisecond barrier   Worse performance (>1 sec)
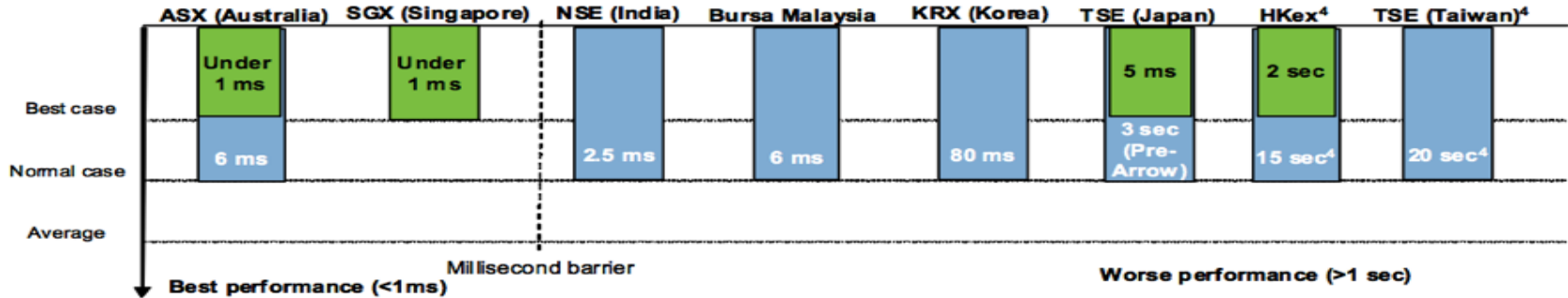
Business Drivers and Technology Impact

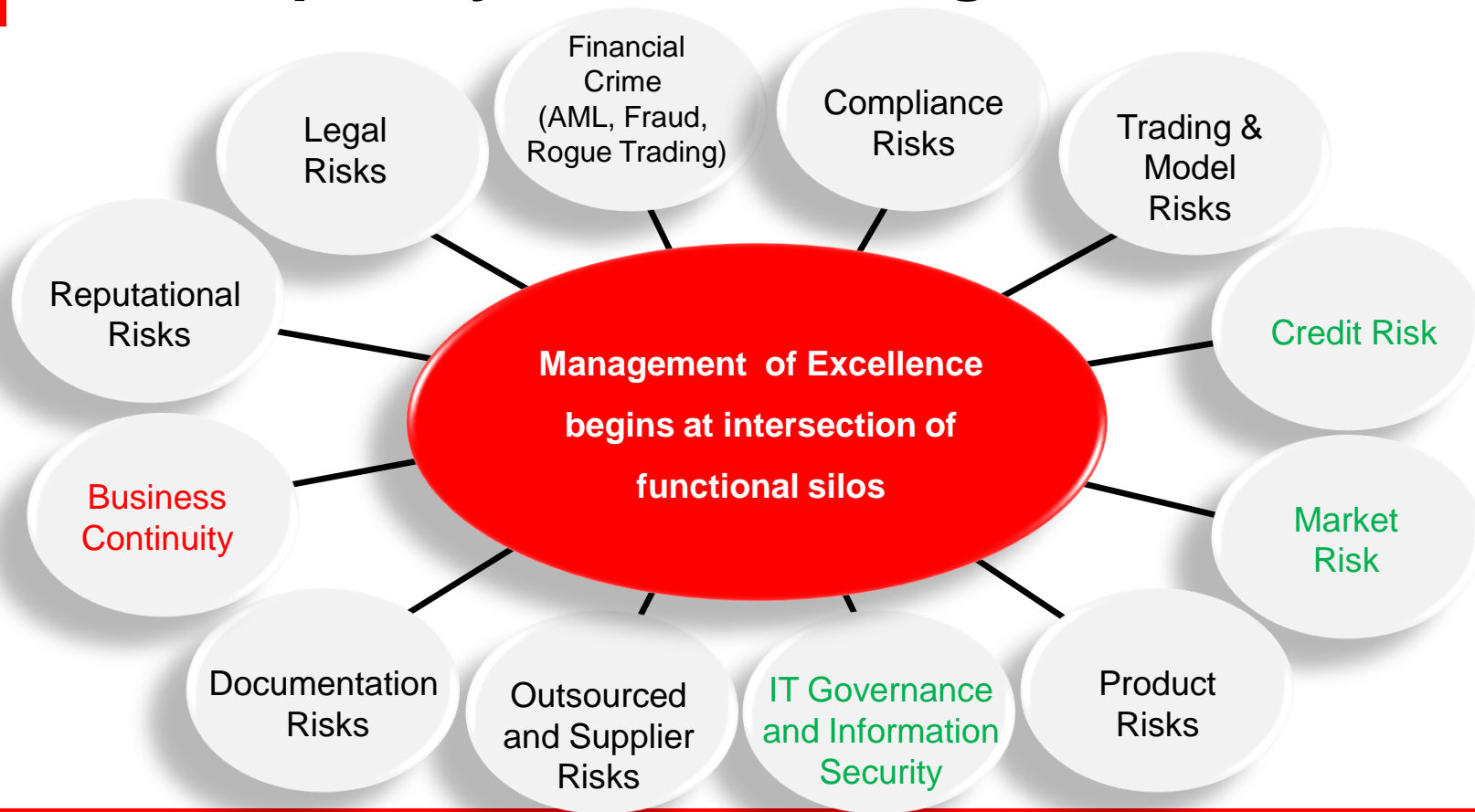| INDUSTRY DRIVERS	BUSINESS CHALLENGES	TECHNOLOGY CHALLENGES
• Market Fragmentation - Globalization, New Venues, DMA • Move back to low margin Flow products • Growth in trade & data volumes - Quotes, Orders, Trades, Sub-millisecond streams • Risk & Regulation - Compliance, Best Execution, Leg Risk • Automation - Algorithmic trading, OMS-EMS integration and expansion into SOR	• Trading more quickly than competitors – not missing 'fills' • Developing innovative trading strategies • Processing volume Flow business profitably • Getting a consolidated view of liquidity in a fragmented market • Geographical locations • Systems TCO • Integrating risk management and compliance into Electronic Trading • Ensuring that settlement processes can keep pace with trade execution volumes Governance – things are moving too fast to keep control • Latency increases risk which is a drain on capital	• Identifying technologies which can offer competitive edge • **Time to Market** - building applications quickly which run fast • Ability to **reduce latency** - Venue, Network & hardware, Data transport, Apps • **Latency, Scalability, Throughput, Performance & Determinism** • **Geographical Availability** • **High-quality STP - integration of risk & settlement systems** • Adoption of interconnectivity standards • Performances

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The complexity of Risk Management

Legal Risks

Financial Crime (AML, Fraud, Rogue Trading)

Compliance Risks

Trading & Model Risks

Reputational Risks

Credit Risk

Management of Excellence begins at intersection of functional silos

Business Continuity

Market Risk

Documentation Risks

Outsourced and Supplier Risks

IT Governance and Information Security
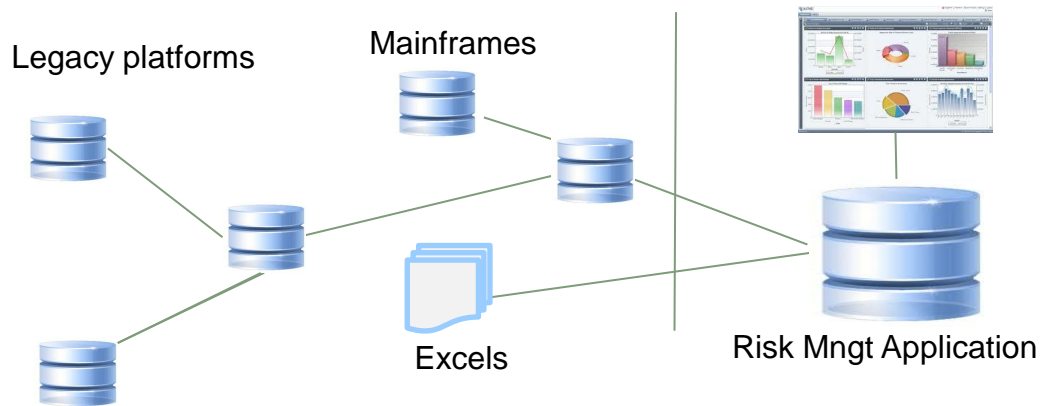
Product Risks

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DIS in Risk Management

Risk Mgnt: process of measuring potential dangers

- To analyze and evaluating critical risks, a Bank needs to collect, consolidate, and reconciliate trusted data delivering, actionable in real time to risk management applications.

- Operational, Credit & Market Risk processes involve a lot of human, labor-intensive tasks, manipulating massive amounts of documents and spreadsheets, and manual data entry: risk of data quality and accuracy could have devastating impacts.

- Systems supporting operational risk initiatives are generally home-grown, fragmented, costly to maintain, not integrated and timely reporting

- Risk Solutions are always poorly integrated and disconnected from other critical business systems (see Basel III requirements)

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DIS in Risk Management

Better manage risk and improve compliance

Legacy platforms

Mainframes

Excels

Risk Mngt Application

GG → **ODI** → **EDQ**

Real Time Data movement and Integration, Transformation and Quality

- Fullfills key elements of Basel III compliance

- Faster reaction to changes in risk exposure

- Increased trade execution automation

- Greater accuracy in capital allocation

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DIS for Compliance - Basel III

New capital rules will drive banks to perform data integration projects

- Basel III presents data integration/data management challenges
  - Basel III requires banks to consolidate positions from all their trading desks and to make their trading book compatible with their banking book; to accomplish this the data must be clean and accurate.

- Convergence Between Risk and Finance requiring a single data Source for Basel III
  - Better understanding of your business mix (some initiatives might be positive in terms of liquidity but can penalize the leverage ratio)
  - Complying with regulation is not optional

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DIS for Compliance - Basel III

Better understand the impact of regulation from risk/finance point of view

Credit Risk   Market Risk   Operation Risk

GG+ODI+EDQ

Liquidity

Capital Evaluation

- **Oracle DIS Benefit**
  - Costs reduction because of more efficient use of data

  - Capital & portfolio management and risk-based pricing of transaction could benefit of more valuable and accurate data

  - Increase regulatory confidence

  - Improve Transparency

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DIS in Fraud Management

- Monitor, detect, and prevent fraudulent activities across the enterprise to increase efficiency and reduce risk:

  – Combat Payments Frauds getting a comprehensive view of all electronic payment activities, *in real time*, to take immediate action;

  – Maintain truy data for Anti-Money Laudering application (AML) by cleansing, matchstworthing and data quality processes, decrease false positive from report fraud activities

  – Control ATM cash withdrawals and monitor credit/debit card fraudulent use activities in real time;

  – A complete access to fraudulent data from different bank applications helps to reduces insider trading;

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DIS in Payment processes

Hundreds of thousand ATM transaction access in high availability

Non-Invasive Real Time Transaction Feeds

GG

ATM Application

ATM Application
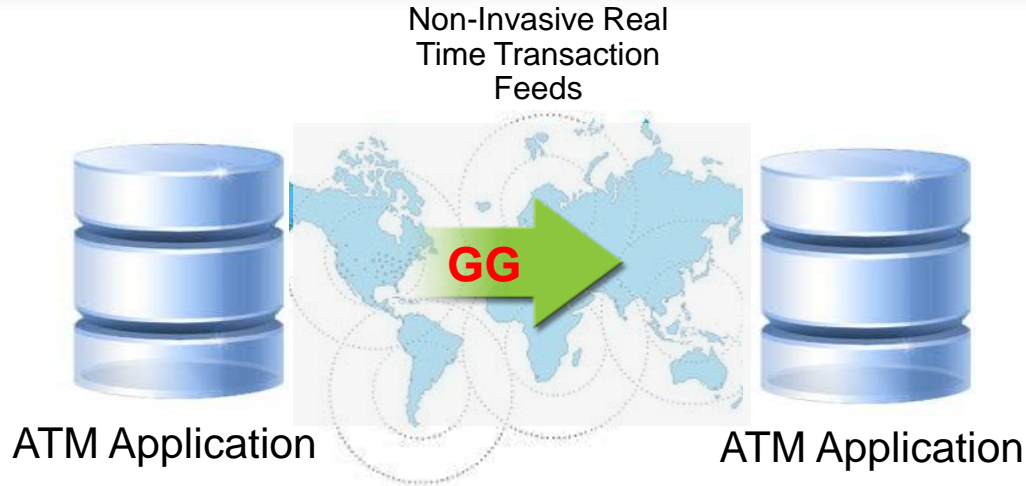
- Ensure continuous availability for hundreds of thousands transactions processed daily, standing orders, direct debits & credits, ATM cash withdrawals and deposits

- Reduce switchover time, support active-active for HA and fraud detection and synchronize thousands of transactions per second, millions per day

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DIS in Customer Acquisition & Retention

Grow through the acquisition of new, profitable customers

– Customer-focused strategy that attracts and retains clients is the only way to become a high-performance bank of the future

– On average, any bank will lose 20% of its customer base every year, and yet it is suggested that by retaining as little as five percent of that base could increase profitability by up to twice their current figure

– Improve up-sell and cross-sell rates, delivering better customer service could be the differentiator from competitors

– Single version of Customer view is the foundation of marketing and sales effectiveness improve

DIS in Operational Efficiency

Make your operations and customer experience more seamless

- DIS enable a more efficient Financial Trade Integration

  – High volume data involved in trading and brokerages exchanges need to be managed in high availability and delivered with an extreme low latency

  – Trades must be monitored in real-time to for ensure market visibility and integrity

  – To Increase competitiveness trading need to meet the time windows that the market demands

  – To provide an accurate picture on the content and prevent fraud and risks data quality issues should be solved

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DIS in Finance Modernization

Reduce costs with Mainframe Downsizing

- Aging Technologies
  - FS was one of the first industries to embrace computer technology which has left them with more legacy than any other industry

- High Operating Costs
  - Mainframes are expensive to run and maintain

- Mainframes keep data locked in jail
  - Hard to meet FS transparency and regularity compliance when your data is stuck in old legacy systems that are hard to customize to produce new reports.

- Complex infrastructure
  - Banks have dealt with legacy by implementing complex integration which is now out of control and makes it difficult and slow to take advantage of new channels like mobile payments

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99% Service Availability
Bank of Valetta

CHALLENGES	SOLUTIONS

CHALLENGES

- Ensure continuous availability for the hundreds of thousands of customer transactions processed each day,
- Guarantee 24/7 uptime for its e-commerce, risk management, investment, and payment-hub operations, as well as its business intelligence platform

SOLUTIONS

- Capitalized on the dynamic scalability of Oracle GoldenGate to enable customers to continue withdrawing cash, making card purchases, carrying out internet banking, and shopping online
- Achieved greater than 99% service availability

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#OracleDataIntegration

Reducing Risk of Financial Fraud
Barclays

CHALLENGES	SOLUTIONS

CHALLENGES

- Guarantee highest standards of accuracy and ensure global consistency for screening 48 million existing customers

- Multiple legacy compliance screening solutions with data held in multiple languages

- Huge volume of customer data, 90 million customer records

SOLUTIONS

- Used Oracle Watchlist Screening to prevent conducting business with sanctioned persons and embargoed entities contained

- Reduced false-positives by 40%

- Centrally-governed solution accommodating all of Barclays global offices, with local match rule flexibility

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Hardware and Software

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Engineered to Work Together