Data as a Strategic Asset
Democratising Insights to Drive Innovation

Nathan McGregor | VP, Hitachi Vantara ANZ
Chris Drieberg | Director - Pre Sales, Hitachi Vantara ANZ
“A clinical study collecting, transferring and analysing data on ten patients used to take around six months. Now we can realistically do that in a week. The kinds of experiments that are being done, the kinds of publications that are being produced and the types of people we collaborate with have changed completely. It’s been a win for us.”

Professor Pankaj Sah
Director, Queensland Brain Institute
Data is Everywhere

90% of the world’s data was created in the last 2 years.

1,500,000 more connected devices in 10 minutes.

2.5 quintillion bytes of data created each day.

80 billion connected devices in 2025.
Impacts of Big Data.... It’s Just Data!

The 3 V’s of Big Data

Volume
Flexibility to expand and ‘burst’

Velocity
Speed to data access

Variety
Multiple ingestion points and data repositories
Over 50% of organizations are not getting value from their digital transformation strategy.
The Changing Ecosystem

19% of organisations are moving to the cloud, by 2020 that will rise to 30%.

Organisations still have over 60% of their environment residing on-premise.

How do we align?

Through a Hybrid and Multi Cloud Strategy
Customer Types

- On premise
- Private cloud
- Public cloud
- Hybrid or Multi Cloud
Serverless Computing

- Event driven
- Upload code - call function via API
- Underlying technology invisible
- Small-size, short-lived payloads
- Does not directly replace VMs / containers
AI Impacts

- Revenue and Business Value
- Customer Experience
- Cost Reduction

IT = Competitive Advantage
Edge Computing

- Digital business
- Explosion of connected, needy things
- Demand for real-time interactions
# Data Centre Ecosystem – The Hitachi Value

<table>
<thead>
<tr>
<th>Mission Critical</th>
<th>General Purpose</th>
<th>VDI</th>
<th>ROBO</th>
<th>Private Cloud</th>
<th>Hybrid</th>
<th>DevOps</th>
<th>IoT Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
<td>Analytics &amp; Outcomes</td>
</tr>
<tr>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
<td>Applications</td>
</tr>
<tr>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
<td>Software Defined Infrastructure</td>
</tr>
<tr>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
<td>Physical Infrastructure</td>
</tr>
</tbody>
</table>

**Analytics & Outcomes**
- HSDP
- Hitachi Content Intelligence

**Applications**
- Microsoft
- ORACLE
- SAP
- vmware
- Cloud Native Applications

**Management**
- Infrastructure Automation (Hitachi UCP Advisor)
- Service Orchestration (Hitachi Automation Director)
- Storage Management (Hitachi Storage Advisor)
- Data Protection (Hitachi Data Instance Director)
- Collective Insight (HIAA & HDCA)

**Software Defined Infrastructure**
- Virtualization
- Container
- Software Defined Network
- Storage Defined Storage

**Physical Infrastructure**
- Hybrid
- AFA
- Object
- Converged
- Hyper-Converged
- Rack Scale
- Dynamically Configured
- BYOD

**Private/Public Cloud**
- Hitachi Infra based Private Cloud
Hitachi is Creating a Digital Ecosystem of Partners and Customers
What do we do in the real world of IoT

- **CATERPILLAR®**: $750K/ship pa savings through predictive maintenance
- **Hitachi Rail Europe**: Train-as-a-service
- **STIWA**: 15% improvement in Production Efficiency
- **BEONTRA**: Airport Operations Planning
- **IMS**: Driver behaviour monitoring
- **NAVMAN WIRELESS**: Fleet Management as a service for 500+K vehicles
- **HYOSUNG**: Tyre chord quality & throughput with machine learning

**Solve Big Data Problems for IoT**
**Expertise in Machine Learning**
**Industrial IoT with Hitachi**
Fleet of 222 Vehicles

Web-Based Fleet Management Platform

- **24** Heavy Vehicle
- **46** Light Vehicle
- **152** Utility Vehicle
Hierarchical Vehicle Modeling

Utility Vehicle Asset

Sensor Data

- Air Pressure
- Axle Vibration
- Lights
- Load Weight
- Movement
- Temperature

Asset Model

Store models and sensor data

Sensor Data Journey

- Sense
- Stream
- Store
- Blend
- Infer
- Inspect
- Embed & Integrate

© Hitachi Vantara Corporation 2018. All Rights Reserved
Adding Context to Sensor Data

Sensor Data

- Vehicle Location
  - GPS
  - Lat / Long
  - Mapping
  - Movement

- Vehicle Profile
  - Make
  - Model
  - Mileage

- Operational Systems
  - Maintenance History
  - Maintenance Schedule
  - Service Centers
  - Parts Ordering
  - Parts Inventory

Contextual Data

- Business Outcomes
  - Real-Time Fleet Status and Health
  - Repair Recommendations
  - Optimized Maintenance Scheduling
  - Automated Parts Ordering

IoT Data Refinery

- Sense
- Stream
- Store
- Blend
- Infer
- Inspect
- Embed & Integrate

© Hitachi Vantara Corporation 2018. All Rights Reserved
Fleet Status & Health

Choose a report
Filter by Region & Vehicle Type
Fleet Health KPIs

Real time coordinates; color-coded health score
Vehicle profile listing with trendlines & alerting
Price and schedule at nearest depot

Nearest Certified Maintenance Centers

<table>
<thead>
<tr>
<th>Certified Maintenance Center</th>
<th>Status</th>
<th>Rating</th>
<th>Distance from Vehicle</th>
<th>Estimated Service Time</th>
<th>Estimated Service Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson Automotive Downtown Service</td>
<td>Open</td>
<td>1.9</td>
<td>2.2mi.</td>
<td>3hrs 05min</td>
<td>$346</td>
</tr>
<tr>
<td>Bob Ball Chevrolet</td>
<td>Closed</td>
<td>4.0</td>
<td>3.1mi.</td>
<td>3hrs 10min</td>
<td>$310</td>
</tr>
<tr>
<td>Jerry's Chevrolet</td>
<td>Open</td>
<td>3.4</td>
<td>3.6mi.</td>
<td>2hrs 45min</td>
<td>$416</td>
</tr>
</tbody>
</table>

Cost of service
Nearest Service Center
DC Health Monitoring

**Problem Statement**

Global Command Centre for all Data Centres

**Background**

- Unable to monitor the health of all data centres.
- Each data centre uses different monitoring tools and infrastructure.
- Unable to consolidate data silos to understand operational and financial impact.

**Solution**

- Consolidated all the alarms and monitoring information in real time and batch
- Visibility to performance, service levels and reliability
- Manage CAPEX and OPEX utilisation
Executive Dashboard

- Impact and Consumption View of Infrastructure
Operation Overview Global

- Single Operation View of Infrastructure – Time Period
Operation Overview Region

- Drill Down to Region, Device Capacity and Performance
Descriptive, Diagnostic, Predictive

- Three Levels of Information

- Descriptive
  - What Happened

- Diagnostic
  - Why has it happened

- Predictive
  - When is it going to happen again
Digital business agility

We exist to make digital business more agile.

We do this by solving critical challenges in managing and deriving value from DATA.
Innovating across a broad range of industries

Delivering the best OT and IT solutions

Achieving outcomes that benefit business and society