Telstra’s Network 2020

SDN/NFV Evolution Network (SEN) Project
Agenda

1. Position the SEN project within the context of Telstra’s strategy

2. Provide a deeper dive into the project, it’s objectives and outcomes.

3. Outline the challenges, what we learned and the work still to do.

4. Q&A
Our Plan

Vision
To be a world class technology company that empowers people to connect

Purpose
To create a brilliant connected future for everyone

Brand
To create better ways to empower everyone to thrive in a connected world

Strategic pillars
- Deliver brilliant customer experiences
- Drive value and growth from the core
- Build new growth businesses close to the core

Strategic enablers
- Networks for the future
- Digitisation
- Culture and capabilities
Networks for the Future

Direct investments into emerging technology wave
- SDN/NFV evolution
- Network compute
- Programmable network
- Media optimised

5G
- Reinforce mobile leadership and 5G readiness
  - Lead spectrum, speed and technology evolution
  - More 4G area, better indoor coverage
  - New features and services
  - 5G architecture and standards
  - Cat M1 and NB IoT network

Scale and reliability for the future
- Exploit architectural simplicity
- Better tools and analytics
- Proactively identify problems
- Faster recovery

Network 2020
- Always on
- Enhance mobile differentiation
- Support NBN transition

Reusable investment in performance during NBN transition
- Quality VOD to 85%
- Targeted solutions for remaining 15%
- 95% reusable for NBN
Network 2020 Target Operating Model

Organisation and Governance
- Operating Tenets
  - High-performing
  - Cross-Org Alignment
- Governance
- Change Management

People, Culture and Capabilities
- Competence
  - Cloud First, Agile
  - Team performance
- Knowledge
  - Roles and responsibilities

Process
- Automation
  - Agile DevOps
  - OrCHEstrated

Strategic Objectives
- Increase revenue
- Decrease costs
- Improve time to market
- Improve customer experience
- Increase resiliency

Architecture
- SDN/NFV Cloud
- Common NFVi
- Abstraction, Standard APIs
- Network as a Service
- Domains

Customers
- Self Service
- Personalised
- Digitisation
- Configurable
- Mass Customisable

Partners and Ecosystem
- Processes and SLAs
- Open Source
- Shared economics
- Joint innovation
Primary focus of SEN

- Partners and Ecosystem: ✓
- Strategic Objectives: Increase revenue, Decrease costs, Improve time to market, Improve customer experience, Increase resiliency
- Customers: Self Service, Personalised, Digitisation, Configurable, Mass Customisable
- Org and Governance: Operating Tenets, Governance, Cross-Org Alignment, Change Management
- Network 2020 Target Operating Model
- People, Culture and Capabilities: ✓
- Process: ✓
- Architecture: ✗

Principles: Convergence, Resilience, Availability, Security, Commonality and Re-use

SDN/NFV Evolution Network “Project SEN”

Challenge the Status Quo
Promote change by building a bridge to the future
Satisfy a short-term business need
Keep our customer’s traffic safe

FROM:
Traditional conservative Telecoms company

TO:
A world class technology company that empowers people to connect

SEN
New technologies
New ways of working
New culture

Deploy a National SDN/NFV based Analytics Transport Network
New Ways of Working

**Partners & Ecosystem**
- Joint Innovation
- Consortia Model
- Teach To Fish

**Organisation and Governance**
- Operating Tenets
- High-performing
- Governance
- Cross-Org Alignment
- Change Management

**People, Culture and Capabilities**
- Scrum within a Waterfall Telco
- Roles & Responsibilities
- Competence & Knowledge
- Open Source – Up Stream 1st

**Process / Automation**
- Automate First Principle
- Testing
- Build / Deploy / Configure
- Documentation
- Modern Tool Chains

**Strategic Objectives**
- Increase revenue
- Decrease costs
- Improve time to market
- Improve customer experience
- Increase resiliency

**Customers**
- Self Service
- Personalised
- Digitisation
- Configurable
- Mass Customisable

**Technology**
- Open Source Software
- Whitebox Switching
- Native SDN (direct on Optical)
- TOSCA driven
- SDN & NFV Service Chaining

**SEN Focus Areas**
- Convergence
- Resilience
- Availability
- Principles
- Security
- Commonality and Re-use
- Architecture

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Deployment strategy: Protecting the business

- Access Network
- Tap
- Fixed Broadband Control Server
- Existing hardware Collector: With traffic sent over the core network as an Overlay
- Core NW
- SEN Analytics data transport
- Customer Service & Network Monitoring
High Level Architecture

Customer & Operational Systems (Telstra Digitisation)

- User Interface
- API Interfaces

SDN

- Service Orchestrator (Cloudify / TOSCA)
- Path Computation Engine

NFVi

- OPEN DAYLIGHT
- OPEN STACK
- Compute / Storage

Infrastructure

- Whitebox Switches

Service Orchestration

SDN & NFV Controllers

Telemetry
Delivered...

• National analytics transport network in production
• Core SDN/NFV network based on Open Source software and OpenFlow switches
• Accelerated development and software deployment
• Introduced DevOps and Telemetry based operations
• Our people have acquired Agile skilled
• Modern Tool Chain
• Proven consortia model

Established a foundation for evolution
Insights: Success Factors

- Strong Executive Support
- Highly skilled and engaged staff
- Highly collaborative and dedicated vendors
- Insertion into a safe part of the network
- Clear and agreed operating principles
Insights: Real-world Challenges

Security  Reliability  Architecture  Complexity

SW Lifecycle Management  Documentation

“Brownfield” organisations  Governance & Funding  Procurement
Next Steps

Scaling:
- People
- Process
- Network & Technology

Broader loosely coupled Integration into the company’s IT environment
- ONAP (AAI and DCAE leading to CLAMP)
Summary

We have cross company aligned vision and strategy

A new pure play SDN/NFV Analytics transport network

New Ways of Working - A strong start but still lots to learn
Q&A