INTRODUCING THE

CONVERGED COMMUNICATIONS NETWORK

**Presentation to Investors and Stakeholders – 19 April 2017**

TODAY WE WILL DISCUSS

▶ PSTN and current challenges

▶ Preview our new IP Voice network – the Converged Communications Network

▶ What it will mean for our customers

▶ The approach we will be adopting for the change over the next few years

THE PSTN – OUR LEGACY VOICE NETWORK

A complex, platform-heavy Public Switched Telephone Network controlled by the "Intelligent Network" core

The Intelligent Network:

▶ 2 core nodes – Auckland and Palmerston North

▶ The core routing technology: 0800, ported number look ups, etc

▶ Now 30 years old
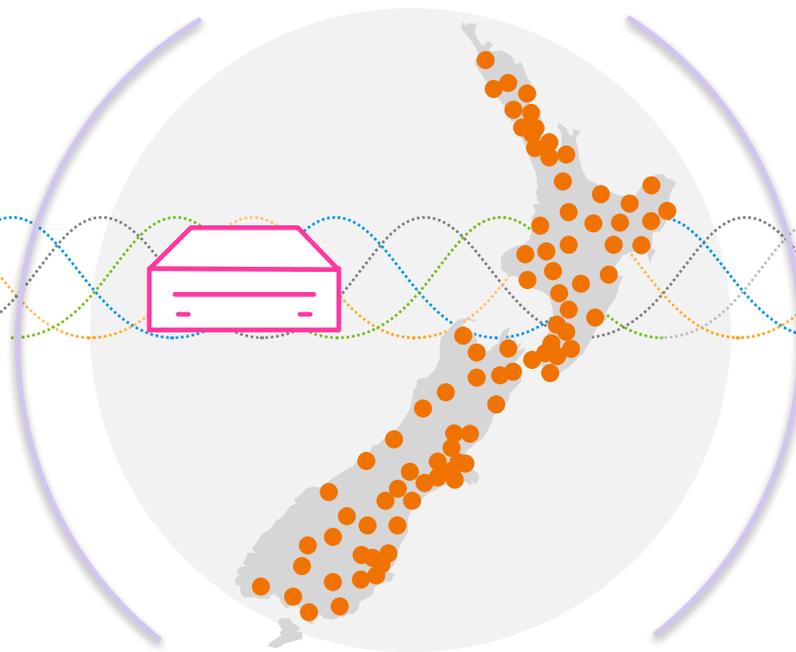
The PSTN:

▶ 482 exchanges (449 Chorus, 33 Spark)

▶ 4553 frames

▶ 682 switches

▶ Aging asset

Spark™

THE PSTN IS END OF LIFE

Both the PSTN and the Intelligent Network core are at the end of their lifecycle, which poses significant challenges

**COMPONENTS** are no longer manufactured

The ability to source **SECOND HAND PARTS** is practically exhausted

The availability of **LEGACY SKILLS** is declining

CUSTOMERS ARE ALREADY "VOTING" WITH THEIR DEVICES

Copper PSTN calls are less than half of the total voice traffic on the Spark network already

Voice minutes on mobile, Fibre, and Wireless Broadband overtook PSTN in early 2016
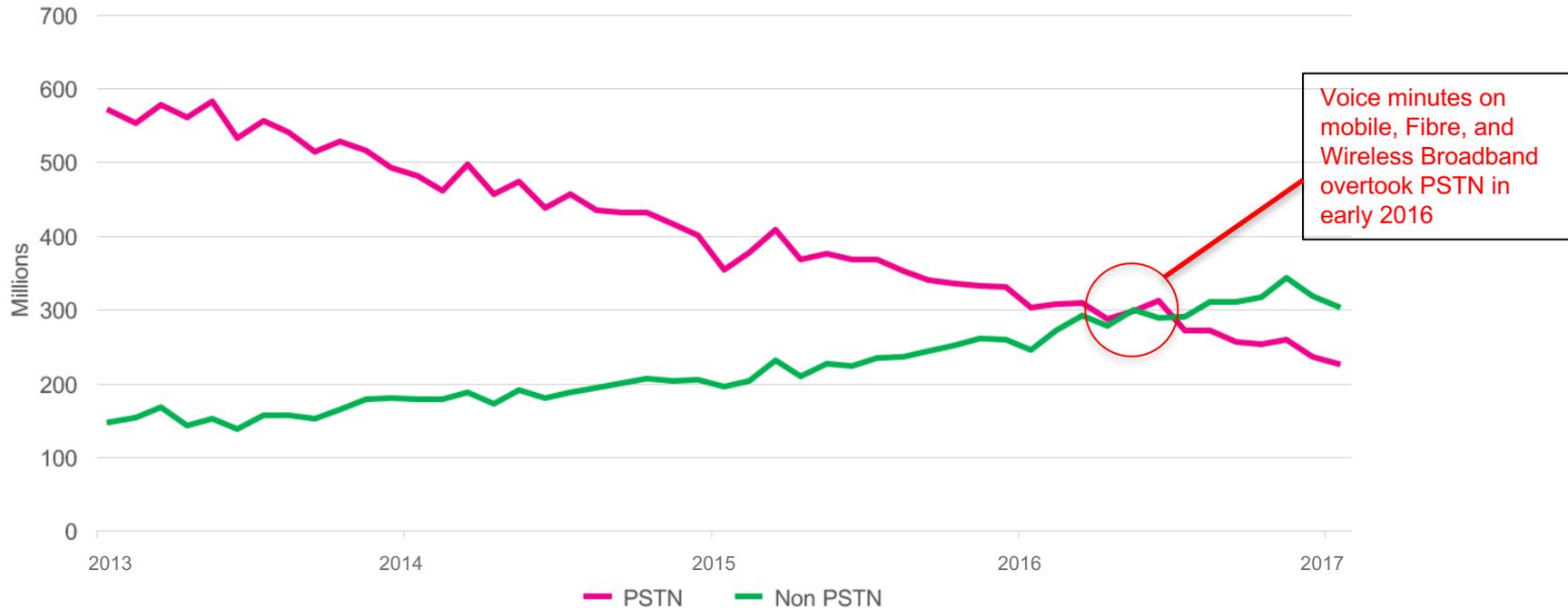
DELIVERING THE FUTURE OF VOICE

The Converged Communications Network (CCN) replaces the legacy PSTN, aligning with global trends, and preparing for the explosive proliferation of data-based services

WIRELESS

LANDLINE

FIBRE

APP BASED CALLING

WIFI

MOBILE

Delivering new services:

▶ Voice application (data)

▶ Video conferencing

▶ Content

▶ Voice over LTE

▶ Voice over WiFi

▶ Simplification of existing plans and pricing

THE CONVERGED COMMUNICATIONS NETWORK

- Three redundant core network nodes, geographically spread, to keep our communications working during a crisis

- Virtualised platform to scale more quickly and efficiently into the future

- Routing traffic through next-generation optical and Ethernet transport networks

- Reducing equipment footprint– a rugby field's worth today, down to barely a tennis court in the future

- Reduced environmental footprint – PSTN today consumes as much power as the whole of Carterton

AGILE AND RESILIENT

Spark

THE PLAN TO DECOMMISSION THE PSTN

We've been talking about it for over a decade, but we've started a five year programme of work

RELEASE ONE — Build a resilient network foundation

2017 ——— 2018

▶ Build the core network foundation

▶ Start migration and exchange decommissioning programme

▶ Introduce a replacement for the Intelligent Network

RELEASE TWO — Scale and migrate off PSTN

2019

▶ Scale up migrations of PSTN, Wireless Broadband, and VoIP

▶ Introduce enhanced calling features

▶ Commence regional migrations

RELEASE THREE — Additional resilience and future services

2020

▶ CCN core for all communications, fully replacing PSTN

▶ New calling features, products, and converged services

▶ Common user experience across multiple devices

▶ Add third core

GETTING PREPARED

We have built the first two new cores and testing begins soon. We've been practicing our migration workflow by consolidating smaller exchanges around New Zealand. So far:

▶ Nightcaps, Southland – September 2016

▶ Runanga, West Coast – October 2016

▶ Waitati, Otago – November 2016

▶ Parawera, Waikato – November 2016

▶ Masterton, Wairarapa – December 2016

▶ Te Kaha, Bay of Plenty – December 2016

▶ Kaitangata, Otago – December 2016

▶ Blenheim, Marlborough – March 2017

▶ Granity, West Coast – March 2017

▶ Ngarua, Tasman – March 2017

Completing shortly:

▶ Little River, Canterbury – April 2017

▶ Governors Bay, Canterbury - April 2017

▶ Paroa, West Coast – April 2017

▶ Karamea, West Coast – April 2017

Minimal customer impact:
- 10 exchanges consolidated and decommissioned, approx. 3000 customers
- Only 4 issues (all old dial up EFTPOS machines)

EXAMPLE EXCHANGE:

Before:

After:

We will need to remove and scrap over **1,300 tons** of equipment in total, **equivalent to 1300 small cars**

WHAT THE CCN WILL MEAN FOR CUSTOMERS

The CCN will deliver new capabilities and services, with minimal disruption to customers

▶ A wider range of new features will be available for home and business customers (e.g. Voice over WiFi, Voice over LTE, video conferencing, collaboration, etc)

▶ Technical network changes will be largely invisible to the vast majority of customers:

- No changes required for most devices

- Negligible transition disruption

- Some legacy elements to consider – line power and exchange-based calling

COMPATIBILITY WITH CUSTOMER DEVICES

On the whole, most customer devices being used today will be compatible with the CCN, but there maybe some exceptions.

► Low-speed dial up services such as some medical and house alarms, old SKY decoders, old EFTPOS terminals, and old PABX systems may not be compatible.

► Newer IP-based digital products with more and better functionality will be able to replace them.

► Will work with vendors and customers to help make this transition as easy as possible, but some customers may need to talk to their alarm companies and third party providers.

► We are not aware of any mass-market third party services that will no longer be available.

CUSTOMER IMPACT DURING MIGRATION

We are working to minimise disruption and inconvenience to customers during and following the phased migration of individual PSTN exchanges

▶ Small outage of only a few minutes during the day at off-peak times for residential calling (between 9am and 2pm).

▶ Checking for active 111 calls before cutting over

▶ Scanning for high-risk customers (e.g. medical alarms)

▶ Services immediately restored once connection to the CCN is established

IN AN EMERGENCY

There are two legacy elements of the PSTN today that are considerations during emergency situations in the future:

▶ **Phone line powered devices** (e.g. traditional corded landlines):

- Fibre and Wireless Broadband are not powered through the phones line. This is the current situation today.

- Customers that don't move to Fibre and Wireless will be migrated to a cabinet based service and will be subject to the battery life of the cabinet. Cordless phones don't draw power from the phone line.

- We encourage customers to ensure they have a battery back up for mobile charging.

▶ **Exchange-based calling** – rare scenarios where an exchange has been cut off from the core network but still has a power supply (or battery)

- Currently people could not call 111 but could still call within that exchange area (i.e. ring their neighbours)

- On the CCN this will no longer be possible because all call routing is done by the core

OUR EVOLVING APPROACH DURING EMERGENCIES

Kaikoura and Christchurch have taught us a lot about shifting usage and requirements during an emergency

▶ There is a greater reliance on mobile during crises now, so we are taking steps to improve mobile resilience.

▶ We are now advising people that to stay connected during an emergency:

- **Primarily rely on mobile**

- Have a spare charger and charged mobile battery pack in your emergency kit (and consider having a spare mobile too)

- Have a safety plan, check on your neighbours etc

Q&A