The Role of Telecommunications in Transforming Healthcare

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Telecommunications – creating opportunities

Telecommunications creates opportunities to address some of the most pressing needs in healthcare today:

1. Empowering the Individual
   - Consumers want increasing control of their healthcare
   - The health sector wants individuals to take greater responsibility for their healthcare

2. Supporting Care Providers (Friends & family as well as the Medical Profession)
   - Access to quality information whenever and wherever the need arises
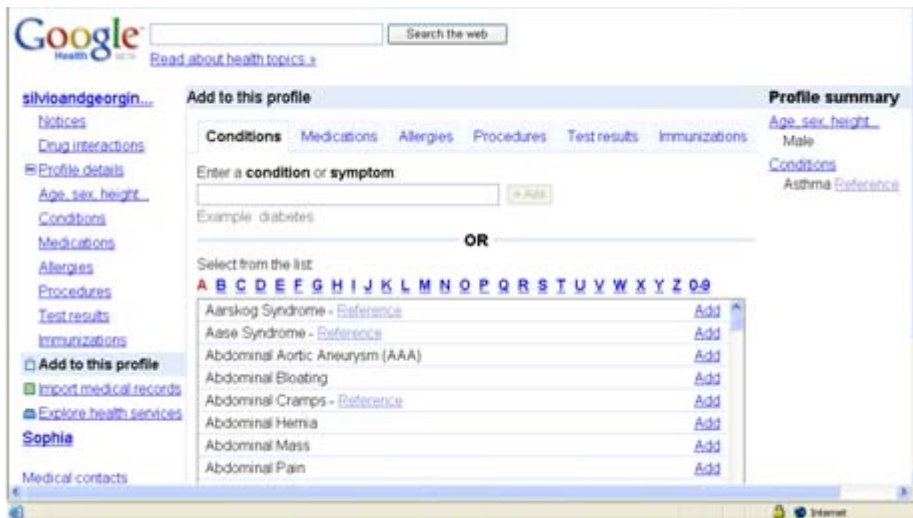
3. Optimising Institutional processes
   - Improved efficiency for Healthcare Providers
   - Reduced costs
   - Reduced errors

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Unprecedented Individual Empowerment through Information

- Web sites, blogs, online journals, etc provide unprecedented information about healthcare topics and services

- Global support groups for people who share similar experiences

- Health Portals (eg Microsoft Healthvault, Google Health) are available for obtaining, storing and sharing medical information

Empowering Individuals with Connected Devices

- Monitoring individuals:
  - Biosensors, smart devices (e.g. accelerometers)
  - Smart Homes – sensors for appliances, security, the environment and the people
  - Increasingly connected wirelessly

- Home Telecare solutions:
  - Monitor patient conditions (periodically or continuously) with alerts to nominated carers based on pre-defined rules
  - Personal alarms with location based alerts – e.g. for falls, heart condition, etc
  - Automated Reminders – medication, diet, exercise, consultations

Wireless transfer to hosted portal

Parameter transfer via Bluetooth

Mobile phone

Medical portal

Glucose meter

Wireless band-aid: peel-and-stick disposable detector that monitors vital signs

Empowering Individuals through Choice

- Extend GP care models to include video consultations, email, and SMS

- Call centre "triage" eg Nurse-On-Call provides invaluable support service to communities while easing the demand on hospitals and physicians

Source: http://myca.com

Source: http://www.health.vic.gov.au/nurseoncall

Next Steps

- **Resolve Liability**
  - A necessary – but not sufficient step – is to ensure all transactions and events are auditable to allow for failures

- **Ensure Security & Privacy**
  - Strong Identity and Access Management is critical

- **Standards and interoperability**
  - Networked Health Records will empower the individual
    - o Patient controls access to data
    - o Information available to all carers from all sources
  - Standards compliance to allow information from disparate sources to be federated

- **Manage information overload**
  - Knowledge Management & Policy Management

- **Resolve funding model**

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Supporting Care Providers – Patient History

- Access to medical history and data over time rather than point-of-care symptoms only
  - All relevant patient information accessible whenever and wherever it is needed

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Supporting Care Providers - Better Tools
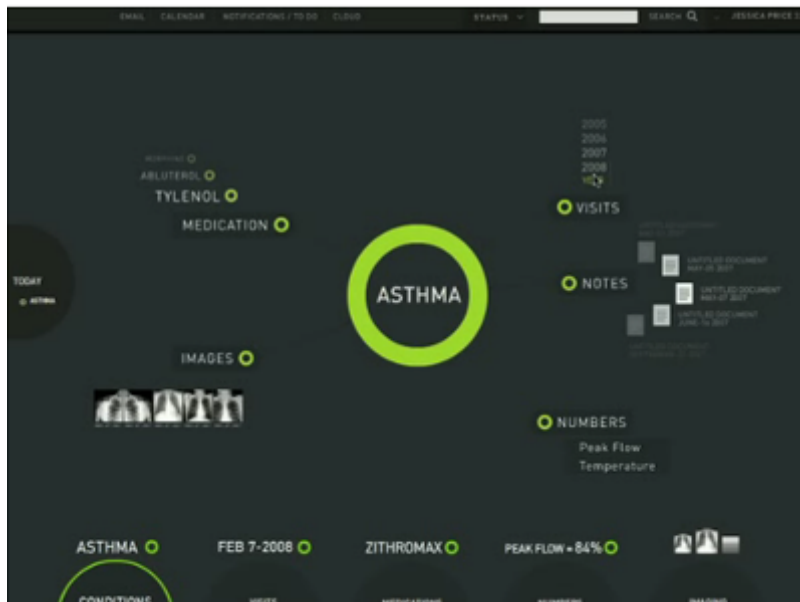
Digitising data

- PACS – storage, retrieval, distribution and presentation of images

- Electronic stethoscope, allows heart reading to be projected on a screen and transmission for 2nd opinion

Bluetooth

Viewed on PC or phone

Supporting Care Providers – Decision Support

- Decision support to assist with diagnosis and treatment

  - Utilise knowledge bank to link symptoms with causes and to suggest treatment

  - Show medication interactions and contraindications

Source: http://myca.com

Supporting Care Providers – Remote specialists

- Multimedia communication with remote specialists

  - Extend access to expertise

Supporting Care Providers – Remote Emergency Care

- Real time
- High definition
- Multi-media
- Guaranteed

City hospital

Referral hospital

Supporting Care Providers - Mobility

Mobile nursing

- Remote access of patient records, including photographic history of wounds and scanned notes

- Record voice notes

- Use phone cameras to photograph wounds and send them to wound specialist for immediate advice

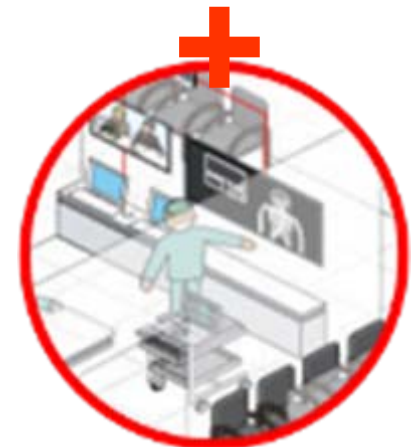- Access to online information resources (eg MIMS on PDA)

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Supporting Care Providers – Ambulance

- Emergency Services – video and medical information prior to patient arrival allows early intervention at the scene and vital preparation at the hospital
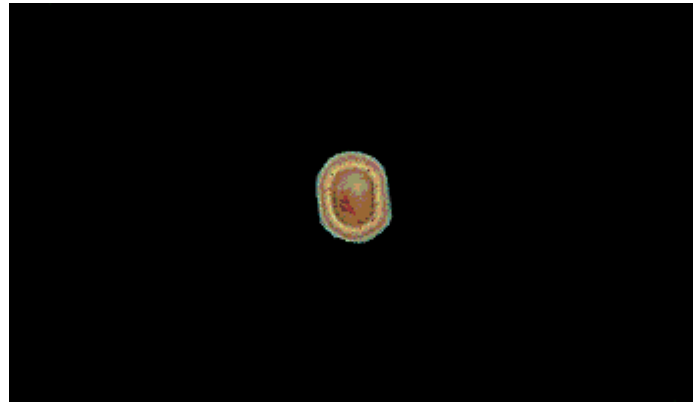
- *Video conferencing with hospital*
- *Access to relevant medical history*
- *Transmission of patient's vital signs*

NEXT G NETWORK

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Supporting Care Providers - Training

- Training / Professional development

  - Simulations

  - Video of operations

  - Access to seminars, conferences, podcasts
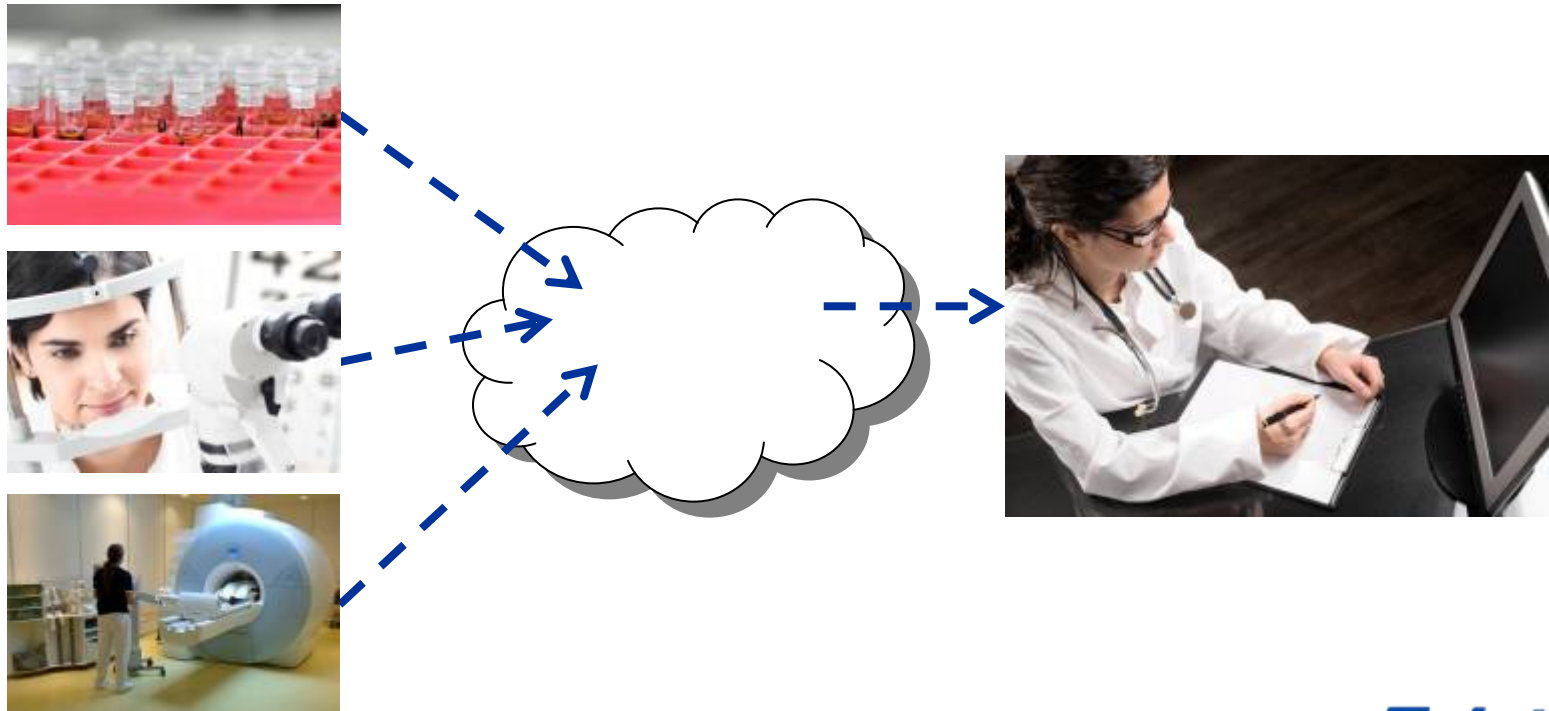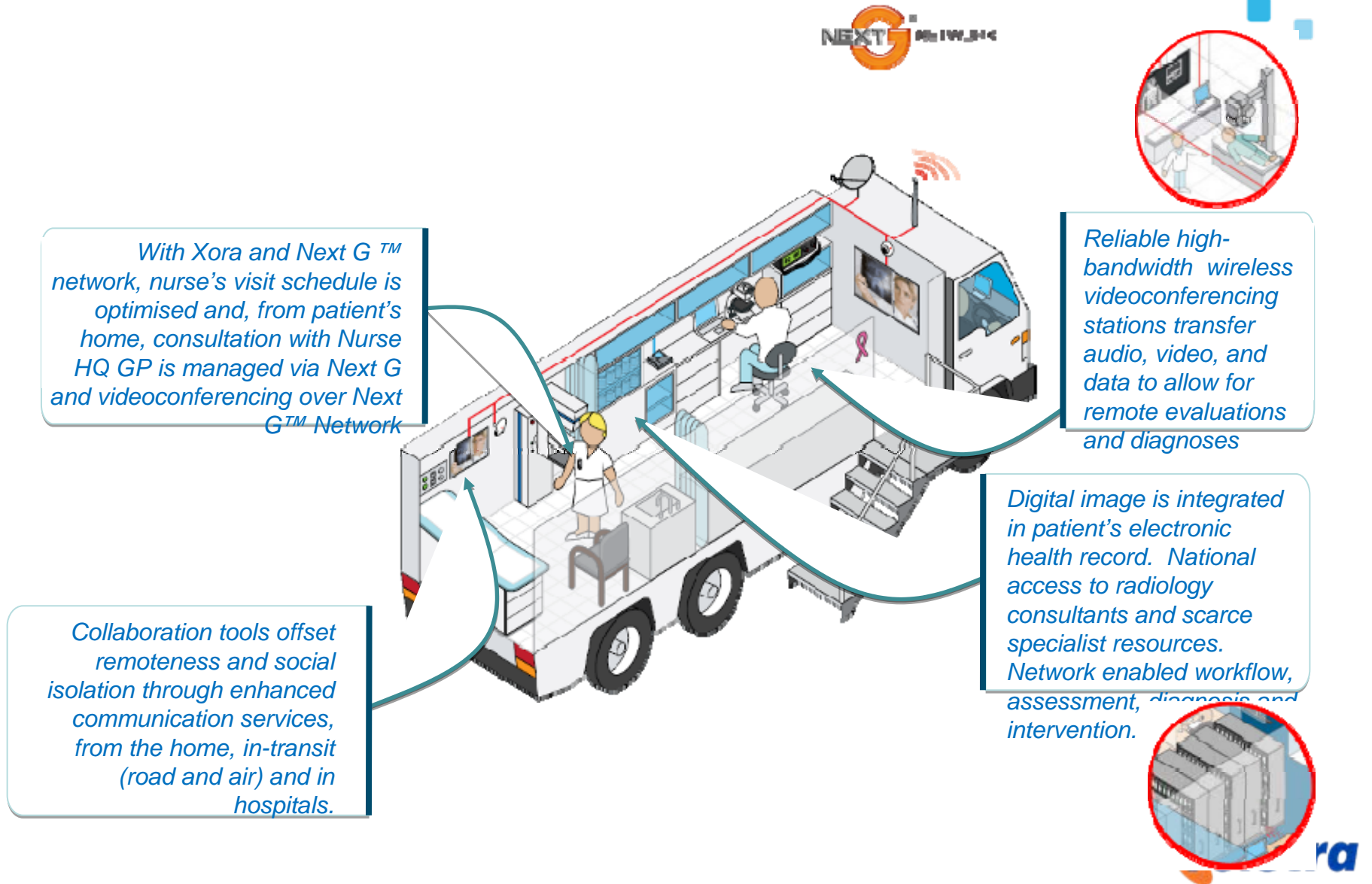
  - Online information resources

Optimising Institutional Processes

- **Changing the distribution of professionals**
  - Teleradiology, telepathology, teleretinal imaging, teledermatology and even telesurgery will transform utilisation of specialist resources
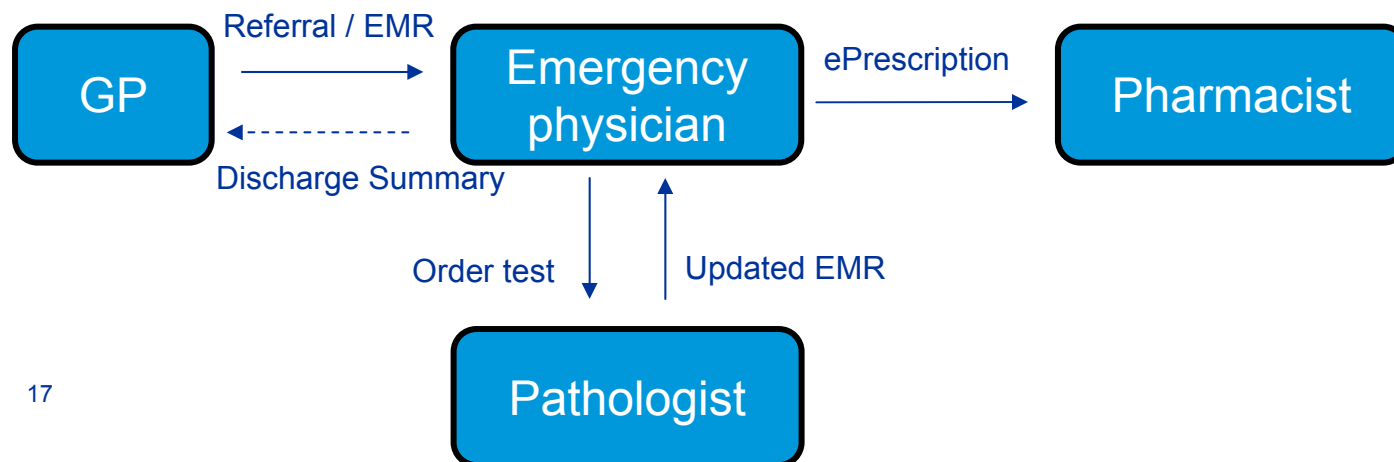
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Example: Health Screening

With Xora and Next G ™ network, nurse's visit schedule is optimised and, from patient's home, consultation with Nurse HQ GP is managed via Next G and videoconferencing over Next G™ Network

Reliable high-bandwidth wireless videoconferencing stations transfer audio, video, and data to allow for remote evaluations and diagnoses

Digital image is integrated in patient's electronic health record. National access to radiology consultants and scarce specialist resources. Network enabled workflow, assessment, diagnosis and intervention.

Collaboration tools offset remoteness and social isolation through enhanced communication services, from the home, in-transit (road and air) and in hospitals.

Optimising Institutional Processes

- Reduce errors through

  o Information available at the bedside

  o One-time data entry

  o RFID tagging of medications and patients
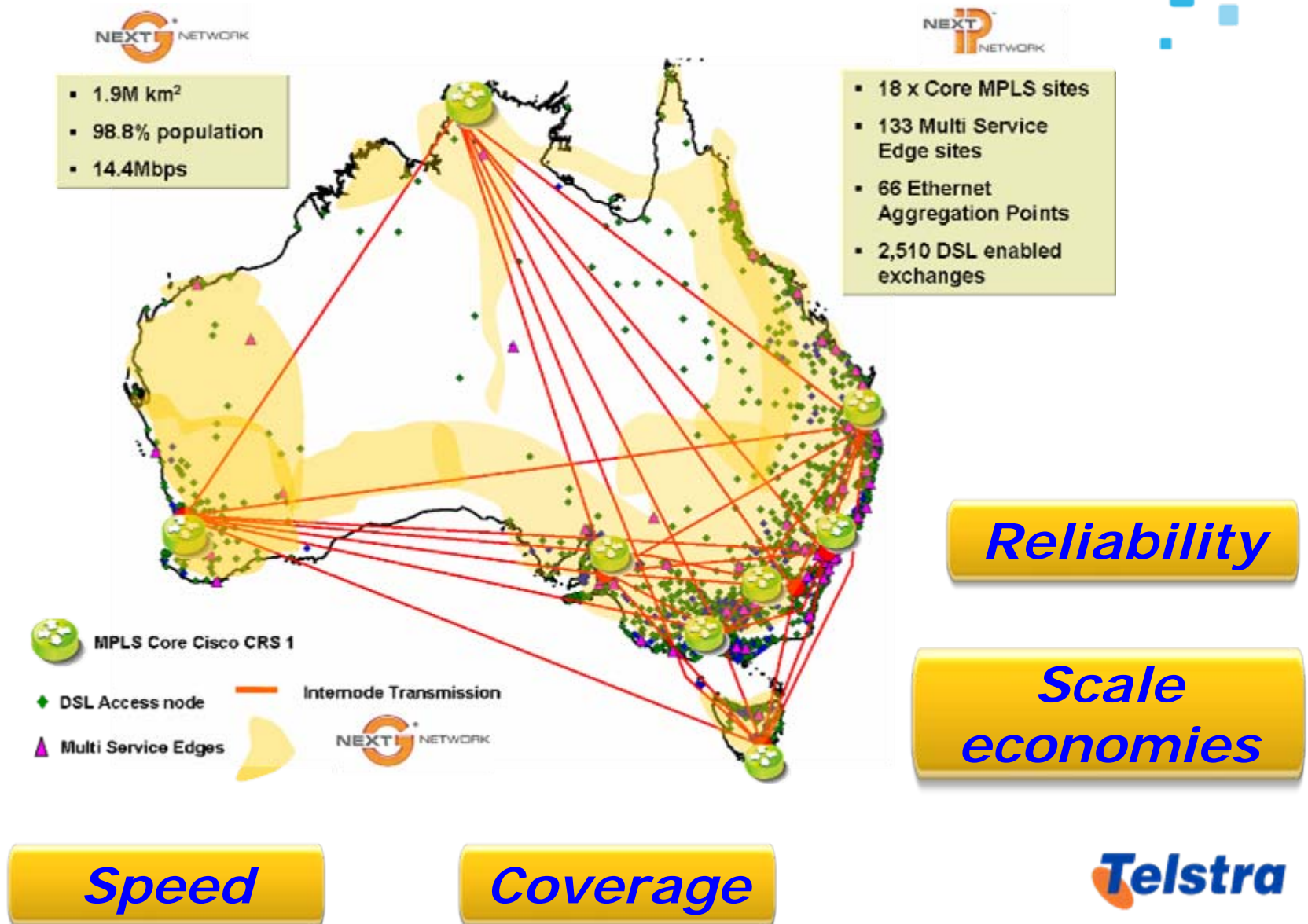
- Increase efficiency through work flow automation

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Optimising Institutional Processes

- ## Health Administration

  - − Store and backup data in the cloud

    - o High speed access and rapid recovery from IT events

  - − Reduce cost through shared applications

    - o Accounting, payroll, resident management, rostering, fleet management, procurement, patient entertainment and clinical records can all be delivered through a SaaS model

  - − Improve Workforce Management

    - o Xora is a staff dispatch and record keeping system that is reducing travel to the office and paper-based records

Telstra's Next Generation Network Platform

Conclusion

Telecommunications Infrastructure platforms create the opportunities – the challenge is to use them to best advantage of the patient

Next G ™ Network	Next IP ™ Network	Next Generation Services
Wireless Broadband	**Broadband**	**Managed Services**

Delivery Capability and Capacity	Quality of Service	Extensive Coverage	Economies of Scale

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