

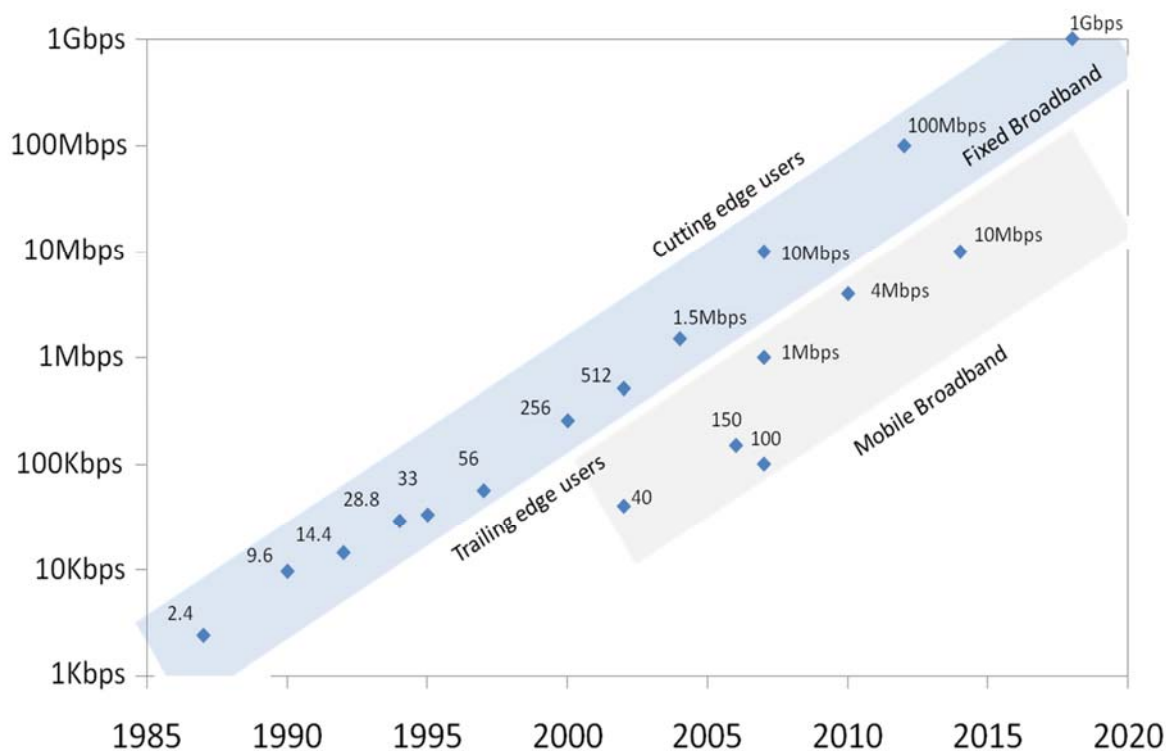
# NBN Co: Broadening Education Though Bandwidth



Sean Casey  
Broadband Applications  
July 2012

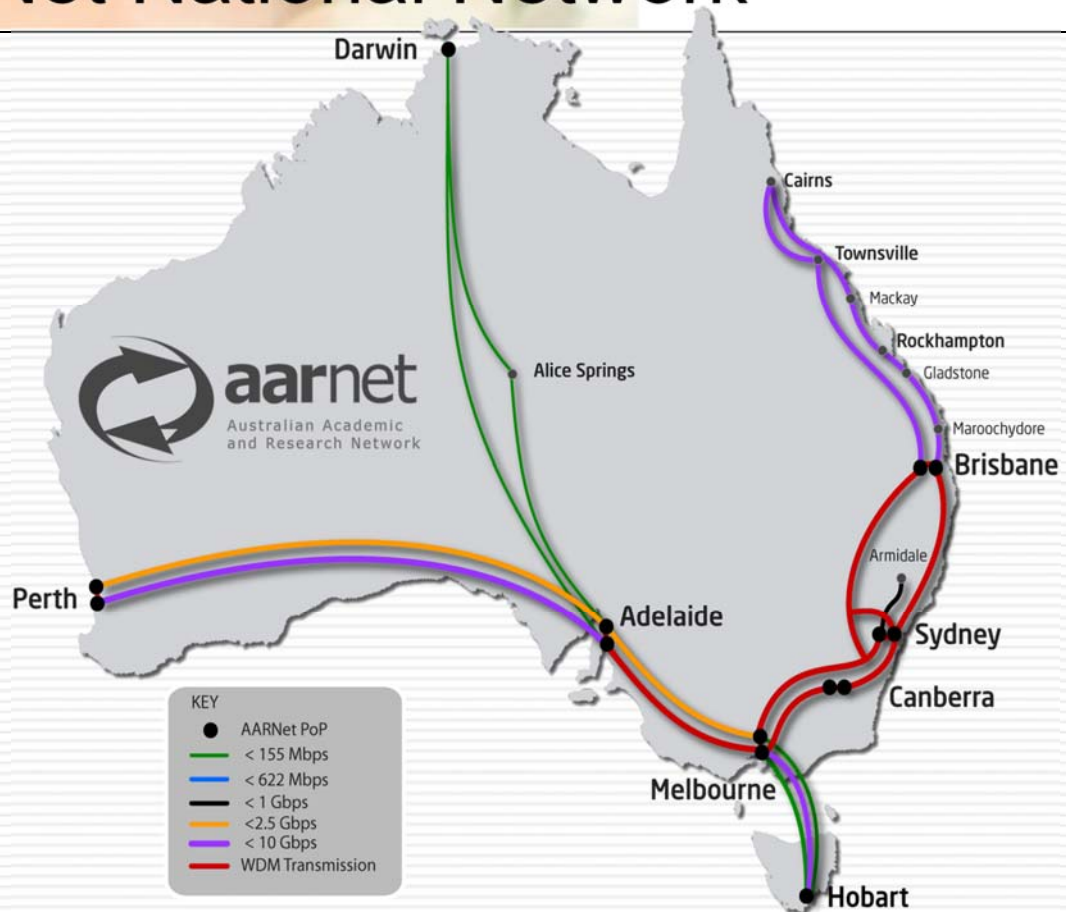


## Bandwidth Demand



Source: Adapted from Alcatel

# AARNet National Network



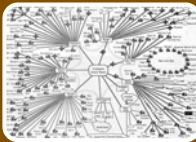
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## Understanding University Architecture



### Physical

- Facilities, Building
- Internal Communications Centre



### Network

- Existing LAN, Fibre Connections
- Phone Services – VoIP, Legacy Copper



### Business Model

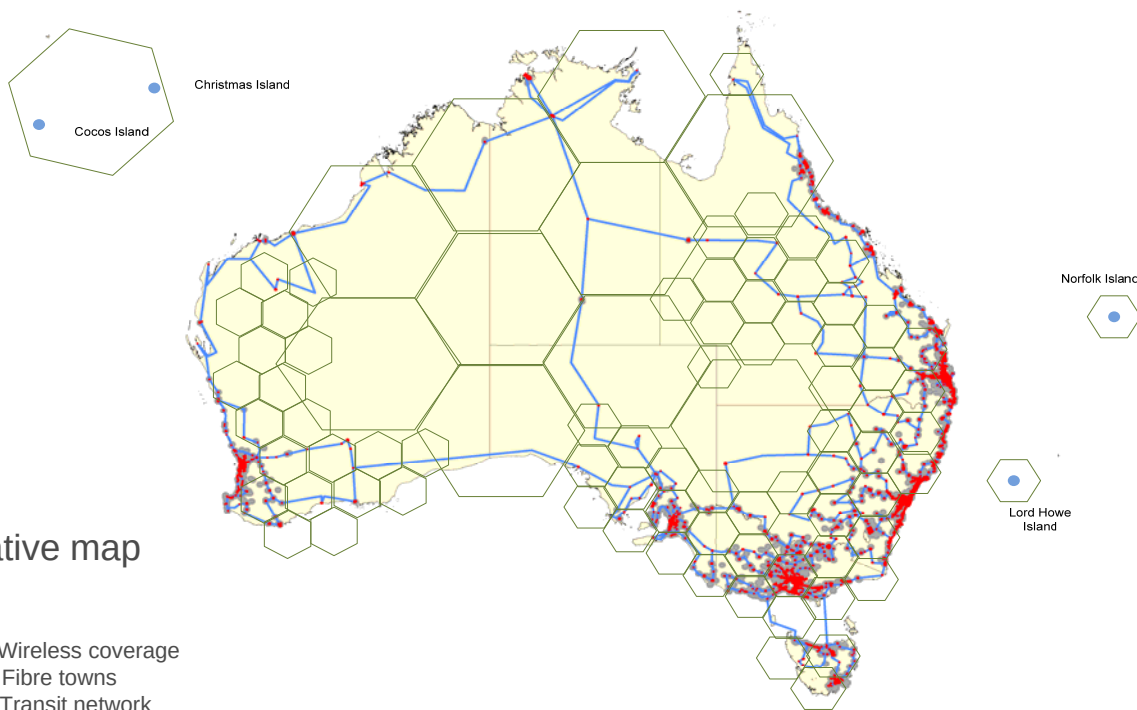
- Who is connecting on the network
- How do they pay, contracts



### Applications

- Bandwidth Requirements
- SLA Requirements

93% Fibre + 7% (Wireless + Satellite) = 100%



### Indicative map

Legend:

|       |                    |
|-------|--------------------|
| Grey  | Wireless coverage  |
| Red   | Fibre towns        |
| Blue  | Transit network    |
| Green | Satellite coverage |

5

© NBN Co 2011



## NBN Co – 3 year rollout plan

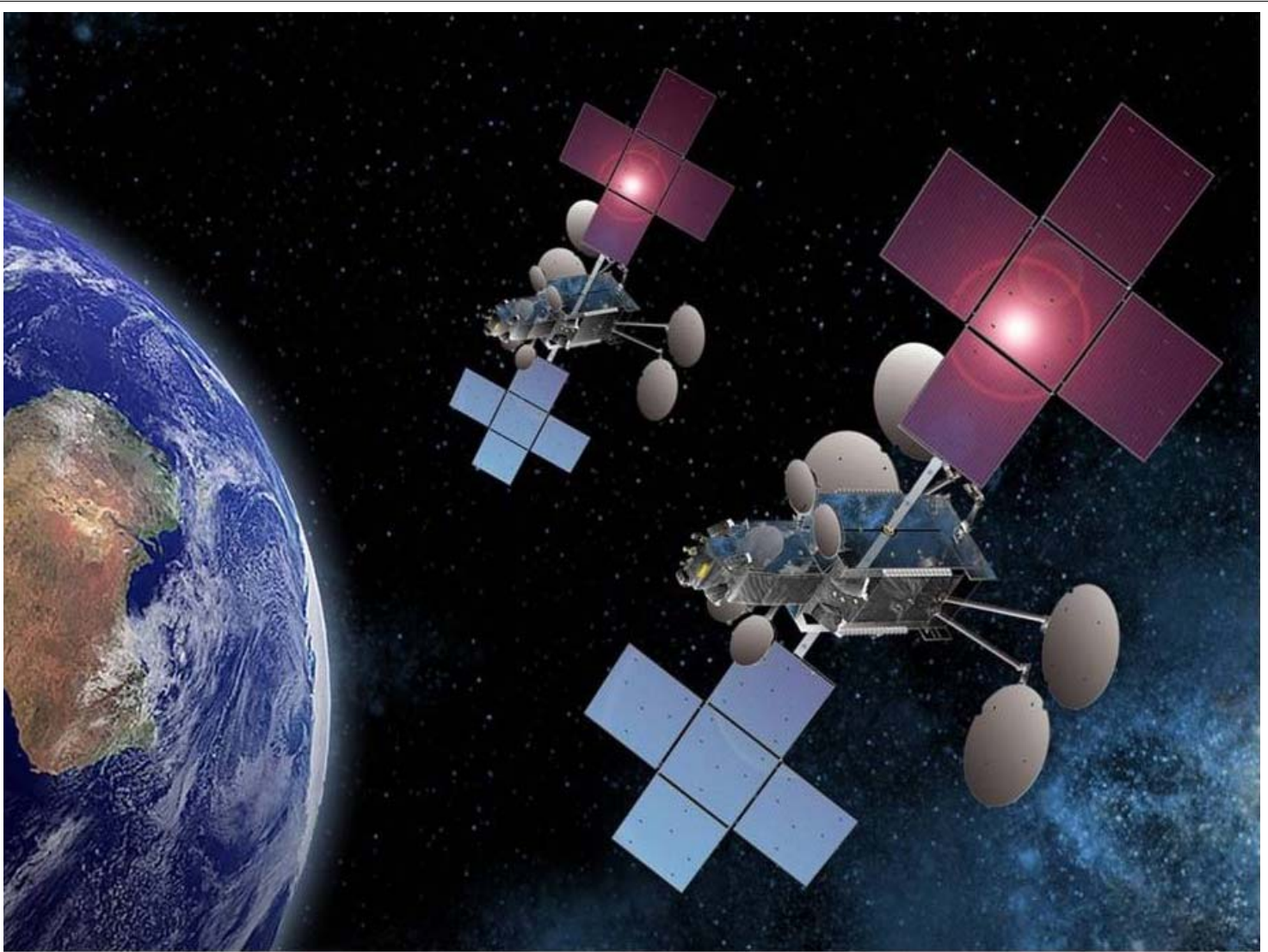
[illegible]

[www.nbnco.com.au/rollout](http://www.nbnco.com.au/rollout)

6

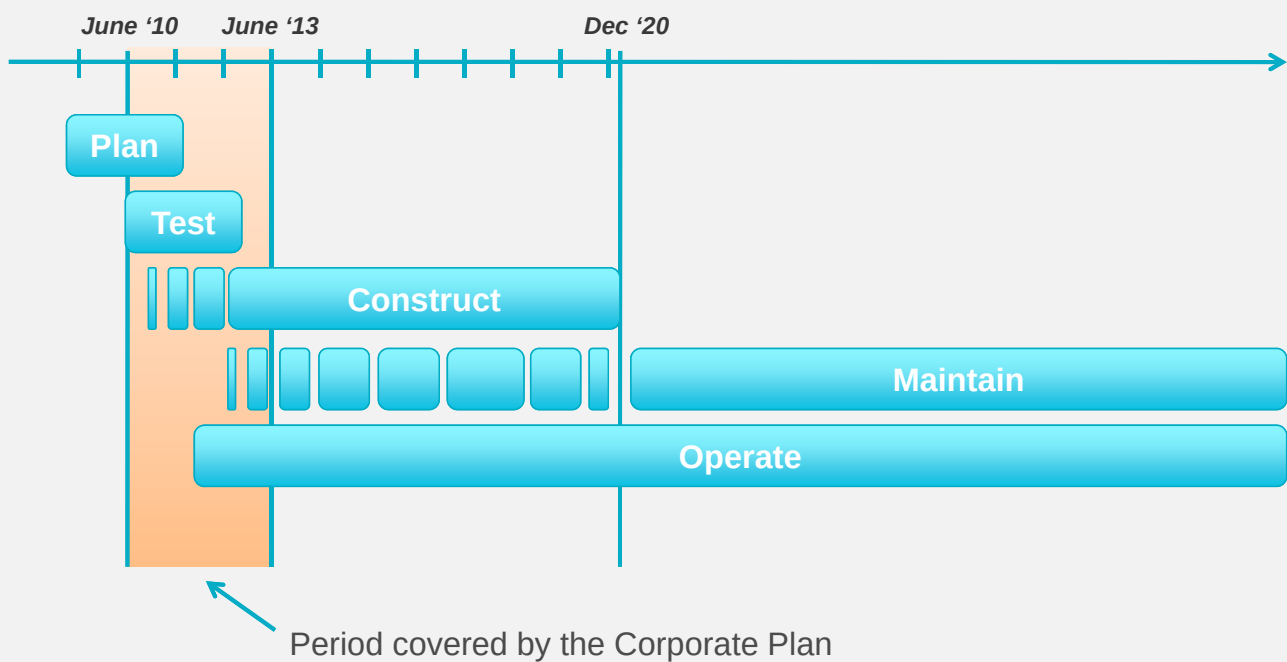






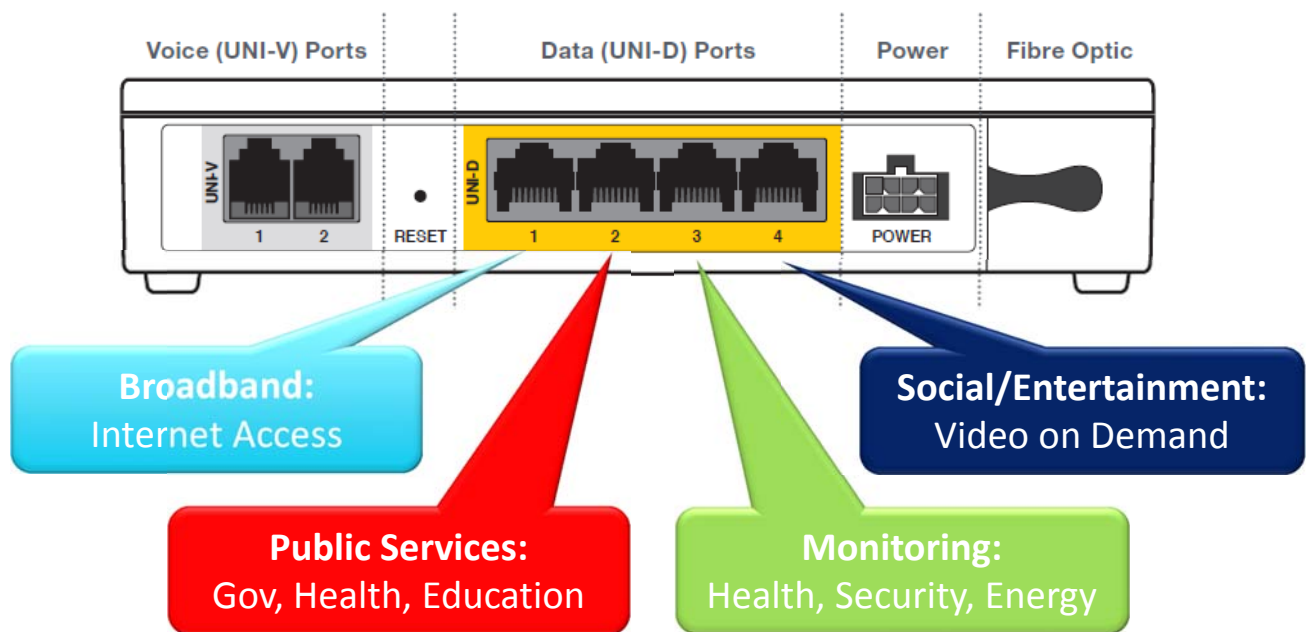
## National Broadband Network – 9.5 Year Plan

### Long-term indicative timeline

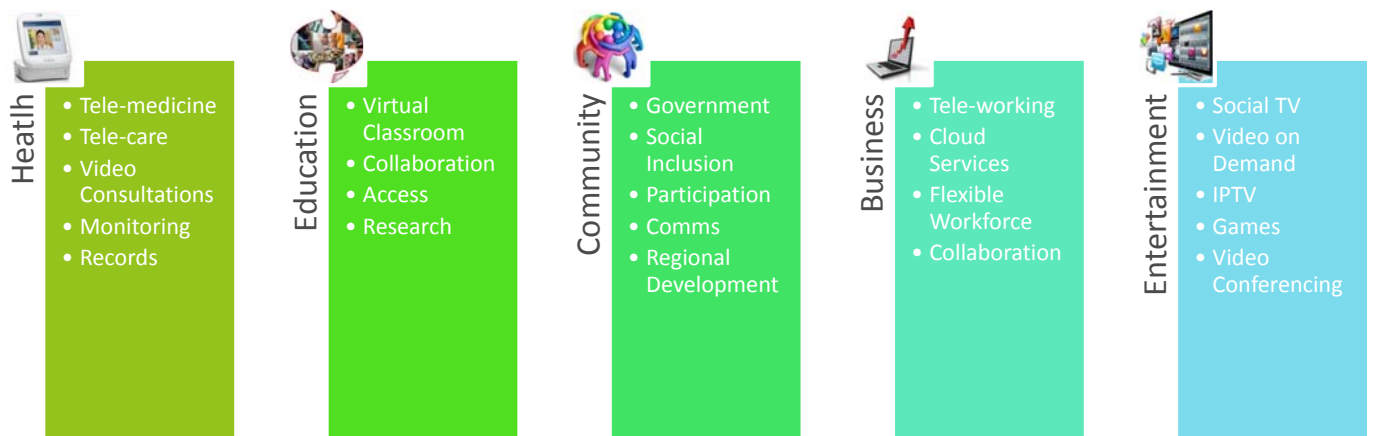


## NBN New Opportunity:

### Multiple Ports, Multiple Services 4 x independent services per home



## Building Cross Industry Infrastructure

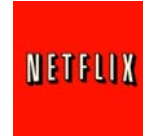


Layer 2

# National Broadband Network

# Distribution/Services moving from Physical -> Digital

| <u>Physical</u> |   | <u>Digital</u> |
|-----------------|---|----------------|
| Post            | ⇒ | eMail          |
| Music Stores    | ⇒ | iTunes         |
| Newspapers      | ⇒ | Services       |
| Bookstore       | ⇒ | eBooks         |
| DVD Rental      | ⇒ | Download       |
| Store, Local    | ⇒ | Online, Global |



What's Next ?

*Health care, Cloud Businesses, Education*

**High Speed Broadband will expand service delivery through two-way communications.**

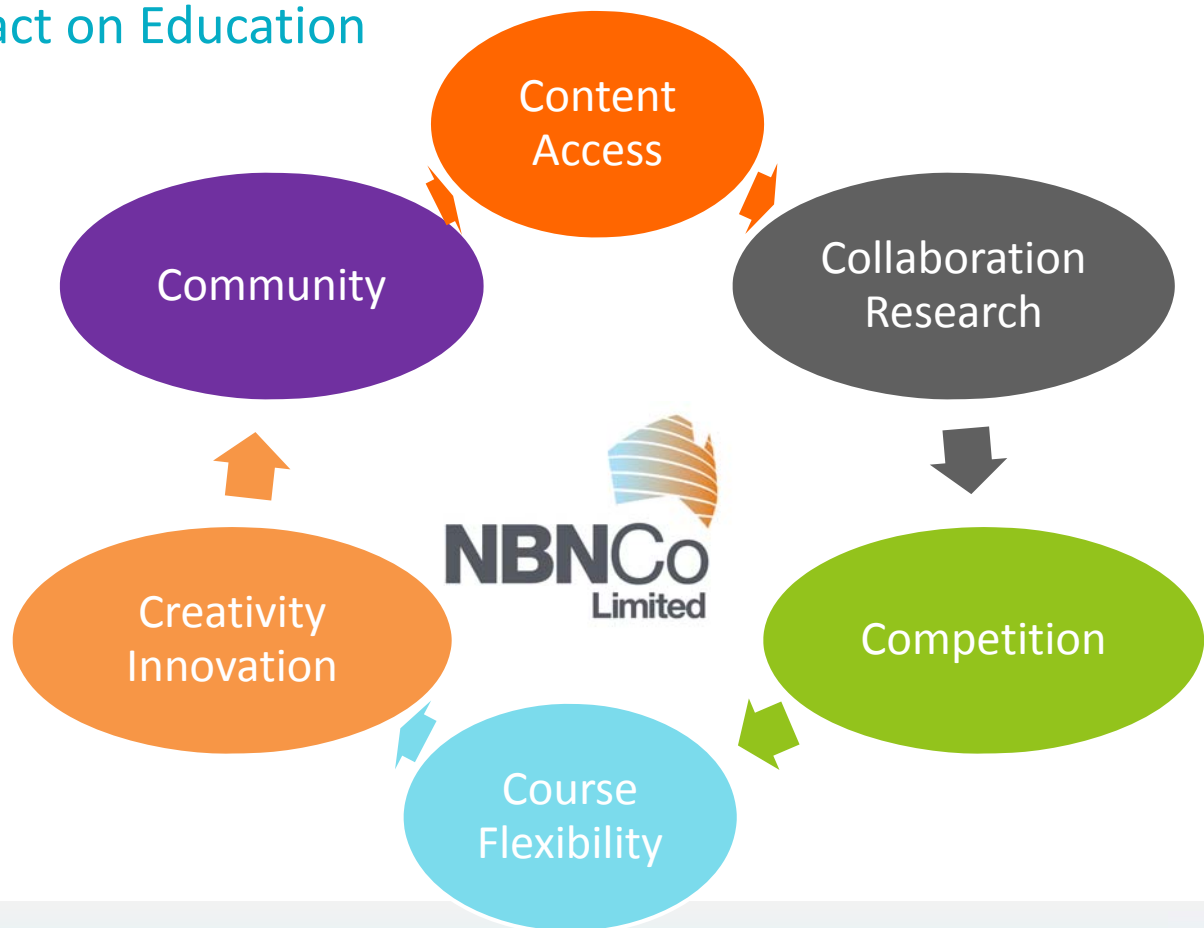


Good news and bad news.....

**New digital boundaries.**



## Impact on Education

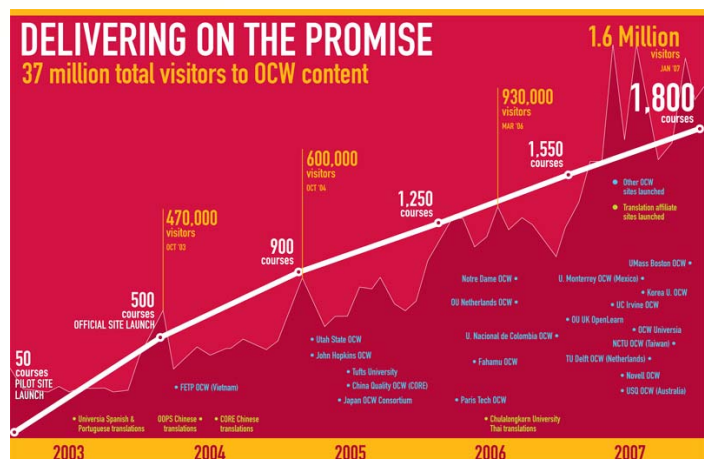


## Content:

Education content everywhere: Video, Audio, Lessons



ACADEMIC EARTH





**Description:** New England Institute of TAFE, UNE and the community technology centre will lead the dissemination of free media-rich open-source digital educational materials and communication applications for individual and workplace training, including lead-in to VET and university courses, through a joint portal



## Outcome:

Educational content available and delivered through broadband services in regional/remote areas.

## Online Student Collaboration and Interaction





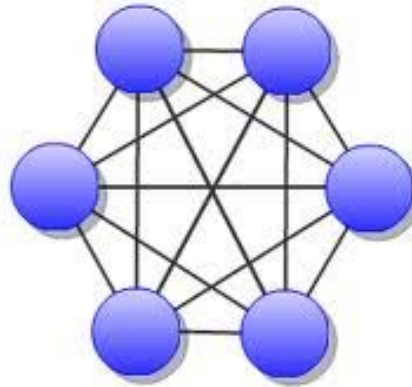
# Virtual Campus: 21st Century Education

## "iSEE" Project: Video + 3D Collaborative Experience

### SMART SERVICES CRC



With iSEE, the user is projected into the environment.



Multi-point to Multi-point  
Dynamic groups  
More students = More bandwidth

## Universities and Community: Gig.U

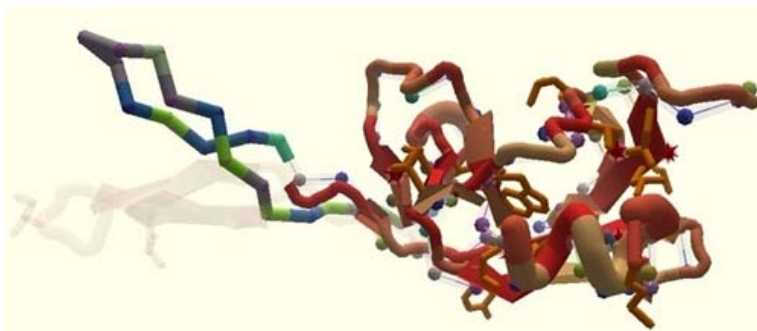


Accelerate the deployment of ultra high-speed networks to leading U.S. universities and their surrounding communities.

# Gamers solve molecular puzzle that baffled scientists

Sept 2011

|                       |                                                                         |
|-----------------------|-------------------------------------------------------------------------|
| <b>Puzzle:</b>        | Protein-cutting enzyme from an AIDS-like virus                          |
| <b>Game:</b>          | FoldIT                                                                  |
| <b>Who:</b>           | FoldIT Contenders Group (Gamers)                                        |
| <b>Time to Solve:</b> | 10 Days                                                                 |
| <b>Celebration:</b>   | Simultaneous champagne toast, shared over a Skype video teleconference. |



**Research:**  
Group Effort  
Collaboration Tools  
Mind and Machine

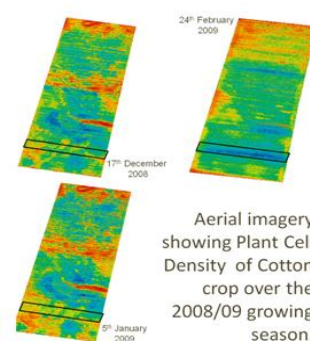
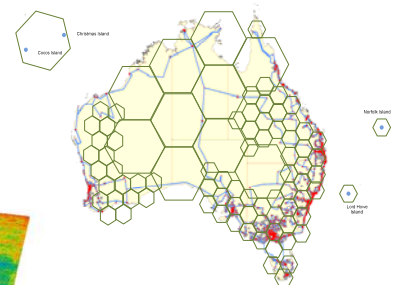
[http://cosmiclog.msnbc.msn.com/\\_news/2011/09/16/7802623-gamers-solve-molecular-puzzle-that-baffled-scientists](http://cosmiclog.msnbc.msn.com/_news/2011/09/16/7802623-gamers-solve-molecular-puzzle-that-baffled-scientists)



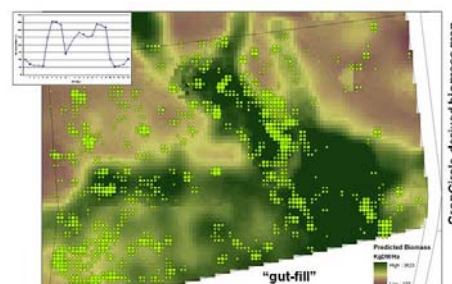
## Broadband for Farming *UNE – Precision Agriculture Research Group*

Low cost monitoring devices will generate large data sets.

- Monitoring and imaging
- Collaboration – Australia Wide
- Analysis = Optimisation

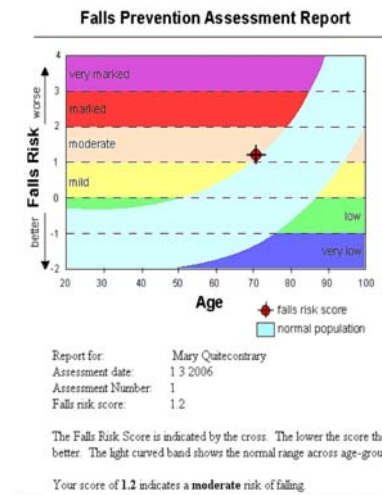
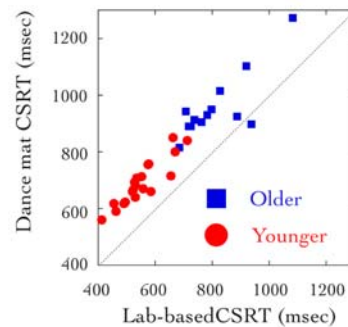


Aerial imagery showing Plant Cell Density of Cotton crop over the 2008/09 growing season.



Courtesy: UNE – [www.une.edu.au/parg](http://www.une.edu.au/parg)

# Health – Fall Risk Assessment Neuroscience Research Australia



## Fast forward - Broadband can ...

- Deliver program updates for in home training
- Record progress and individual performance trends
- Upload video for GP assessments
- Platform for in home video consultation

## Innovation and Economic Development: Australia Fastest Growing Industries in the Coming Decade

| Industry                         | 2011 Rev (\$M) | 2020 Rev (Est) | Growth % | Use Broadband ? |
|----------------------------------|----------------|----------------|----------|-----------------|
| Video Games                      | 3732           | 7988           | 114      | ✓               |
| Security Vehicles                | 13189          | 28205          | 113.8    |                 |
| Stock Exchange Registry Services | 11369          | 23486          | 106.6    | ✓               |
| Internet Service Providers       | 6100           | 11944          | 95.8     | ✓               |
| Online Education                 | 4155           | 7967           | 91.8     | ✓               |
| Investment Banking               | 9183           | 16282          | 77.3     | ✓               |
| Uranium Mining                   | 1128           | 2000           | 77.3     |                 |
| Online Shopping                  | 21344          | 36903          | 72.9     | ✓               |

- Source Smart Investor May 2011 – IBIS World

## Opportunity and challenge for delivering education

