

Ultra Fast broadband – levelling the playing field

....a thought for today....

*“Do not confine
your children to
your own learning.
For they have been
born in another time.”*



Hebrew Proverb

The Age of Access

- Jeremy Rifkin

- **IP addresses** -- to all sorts of things. Computers, cameras, fridges..... your dog.....
- **Networks**, intranets, extranets, MAN's, WAN's
- **Converging devices** - cell phones, \$10 laptops. iPods, PDA's, GPS, 'computers on sticks'
- **Multimedia** – merging sound, images, text, software
- **Web-based** and **Web hosted** – banking, SMS's
- **Broadband** -- big fat pipes.....and **wireless**

...increasing connectivity and mobility

Rural broadband??





.....or.....
Regional Broadband

Welcome to Web 2

- MySpace
- YouTube
- Flickr
- Del.icio.us tagging
- Blogging and RSS feeds
- Facebook and Bebo
- Wikis
- Twitter.....

“IT moves out of the office and into the lounge – that’s the next big revolution” - Brett Robert, Microsoft.

•“User-generated content phenomenon is something we believe is only going to continue to grow.”Alex Zubillaga Warner brothers

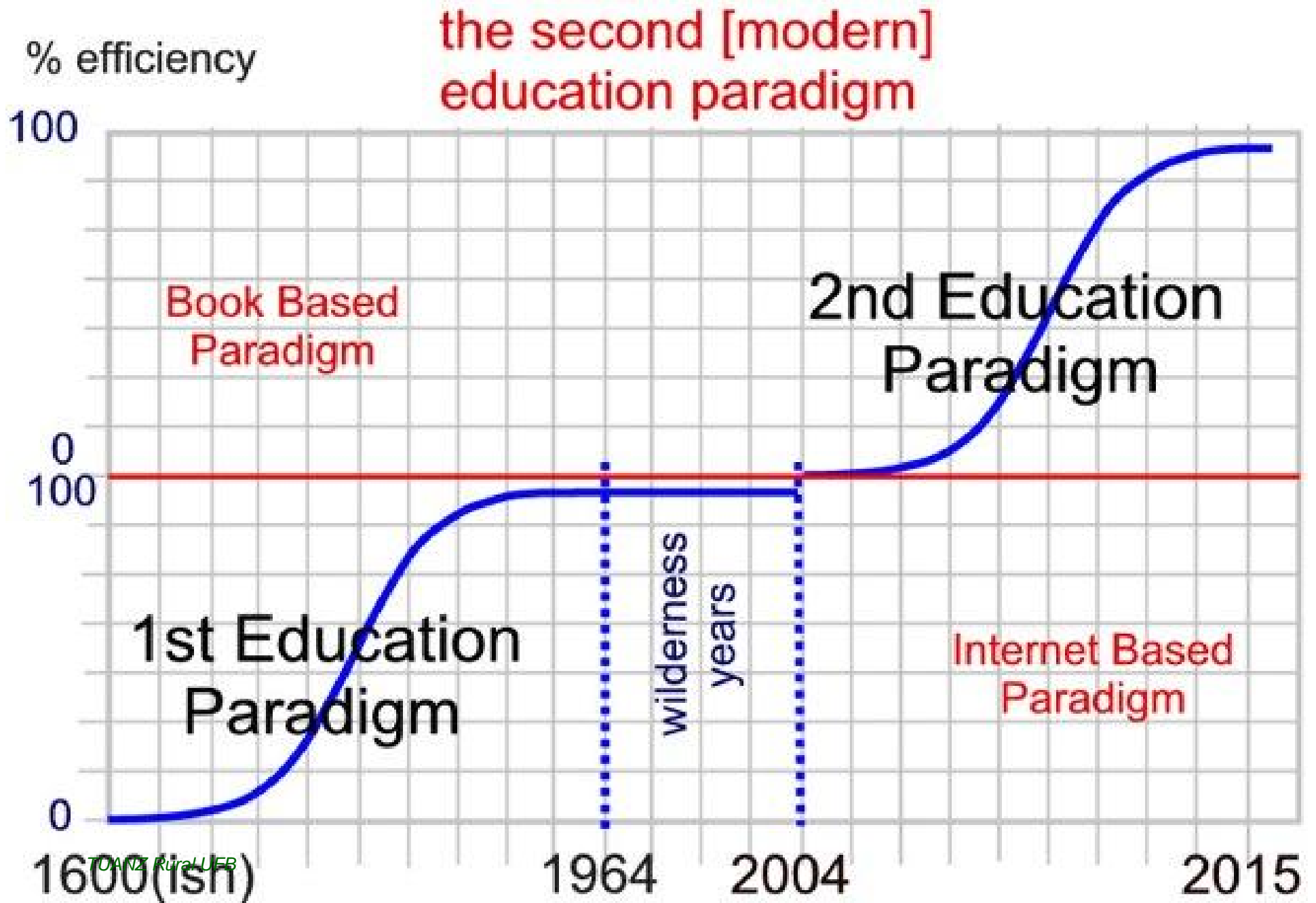
‘Hyper coordination’ – the ‘cyber negotiated public flocking behaviour of texting adolescents’ – Howard Rheingold



Web 2 - the
right to
participate!!

Living in Cyber Space

- **The Internet – living an “online” life**
- **Online banking, on-demand TV**
- **Trade Me**
- **Cell phones, txting, Skyping**
- **EFTPOS**
- **The “Google it” paradigm**
- **RSS feeds**
- **Cell phone radio and TV news**
- **Wikis, blogging and podcasting**



All the world's information and resources for you

- Web Fountain
- Google digital books and the Alexandria Project
- MIT - open courseware, Otago on iPod
- Yale posting video course lectures online.
- KAREN-type networks for research and collaborations
- Emerging National Education Network (NEN)

And access to virtual places.....

and 'real' people.....

India's e-tutors give UK children homework help - [The Observer](#)

- *When Kelsey Baird began worrying about the complexity of AS-level biology she got a tutor from India. It is more than 4,000 miles from her boarding school in Fife to Agra, home of the Taj Mahal, but classes are conducted via a whiteboard so distance is irrelevant.*

The 21ST Student

- Has lived their whole life in a digital world, regards change as a constant and has never known a time when computers and cell phones were not part of ordinary every-day life
- Assumes ability to **access information and communicate with others** regardless of time or geographical location
- To be **stimulated** – multimedia and virtual reality
- No longer just consumers – but **demanding to participate** – welcome to Web 2



"The cast of players in a student's learning experiences has increased dramatically. Convergent technologies now allow experts, peers and collaborators to join the student's world, enriching learning experiences."

Bernard Hollkner, Monash University.

Trends in Education

| | | |
|---------------------------|---|-----------------------------|
| in one place | ® | in any place |
| at same time | ® | at any time |
| from one to many | ® | from any to any |
| from one direction | ® | from many directions |
| in one way | ® | in many ways |
| Through one medium | ® | via multimedia |
| Passive | ® | interactive |
| isolated | ® | connected |

“Schools as we know them now are being redefined”



<http://moturoa.blogspot.com/2009/08/jakes-yesterdays.html>

<http://www.wpsroom10.blogspot.com/>

TUANZ Rural UFB

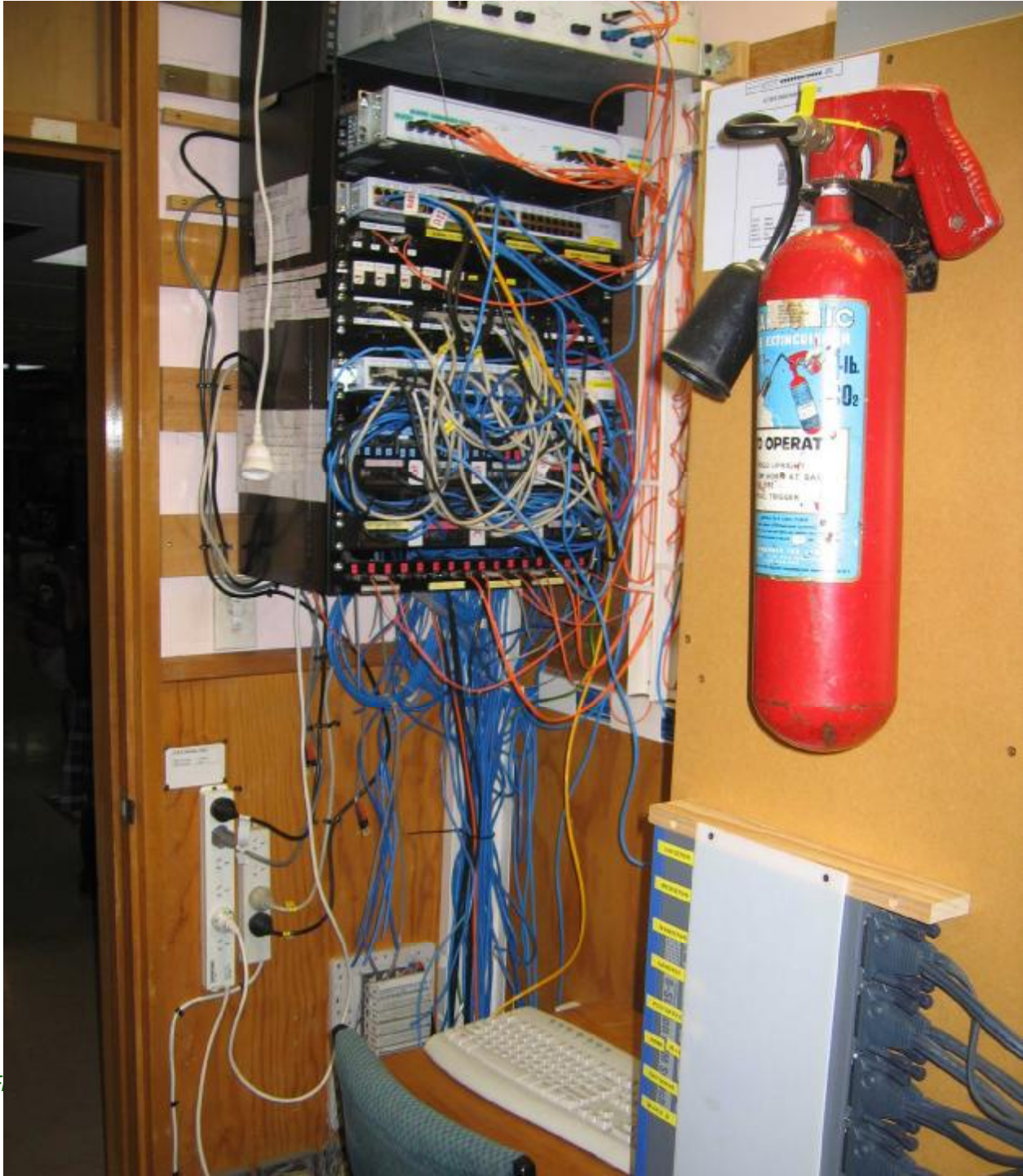
Some things schools are doing

- Video conferencing and distance learning
- Real data research using DOC databases
- Mobile Technology in Maths and Science Project
- Creating/Accessing real-life and live databases (Mussel Farming)
- Using specialised software – biotech, GIS system
- Real time texting images to websites eg from the field
- Pod-casts, blogs, websites, week-end learning communities
- Multifaceted publishing – celebration students work
- Virtual fieldtrips
- Advertising campaign to explore visual learning
- Online careers *Still working to refine this*
- Email a scientist, talk to an author/poet/painter
- Online music tuition

Huge up take in web-based communication supporting professional development

If young teachers are to be attracted to rural areas they must be offered broadband

We cannot achieve any significant progress towards a truly digital classroom environment without a sophisticated infrastructure to support our teachers and learners. This infrastructure must accommodate not just significant adaptation of curriculum and pedagogy - but must also effectively provide digital resources and the hardware, software and expertise for continuous digital teaching across a whole school - and between clusters of schools.



UFB Broadband uncorks the bottle!

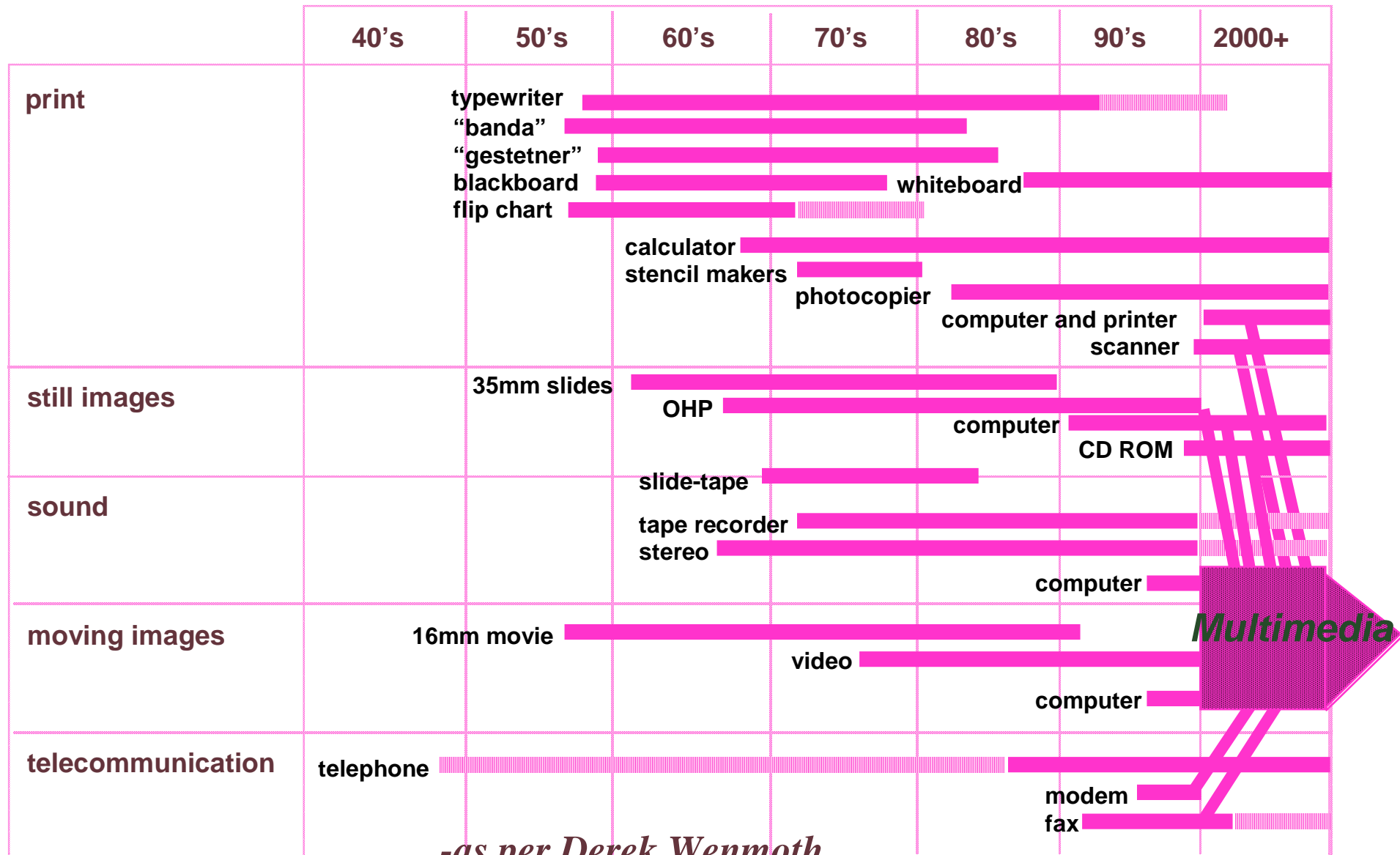
- [FiberSpdnglish.exe](#)

Digital Classrooms

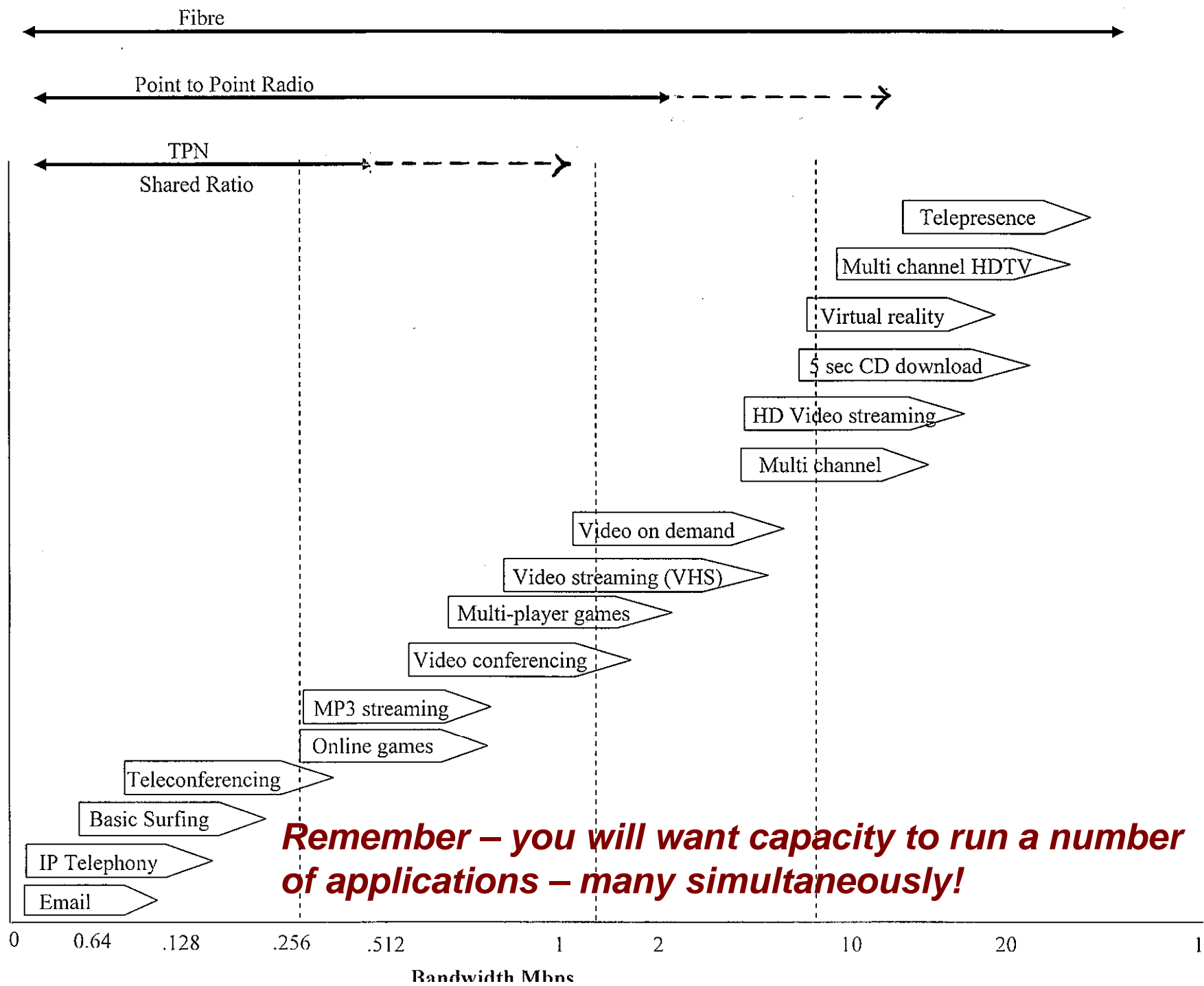
- Moving from low tech to high tech
- Labs to suites to classrooms to handheld's
- J-in-T ICT rich classrooms –laptops, PDA's, data shows, smart boards, cameras, websites
- UFB access to the world

“Go live” – and go “off site” - “One click access to the world”

Educational Use of Information Technologies since World War 2



-as per Derek Wenmoth



Remember – you will want capacity to run a number of applications – many simultaneously!

Welcome to “cloud computing

Virtualisation

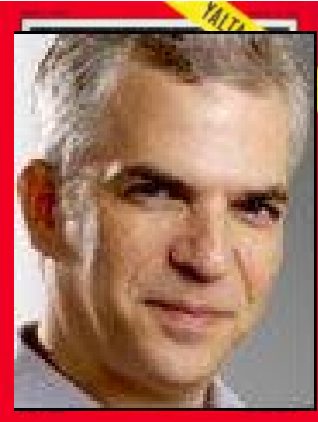
Managed services

Dispersed networks

“ICT as a service



- ***“When the power of the network surpasses the power of your computer - then the whole game shifts..”***
- ***Processing power, applications, workspaces and storage can all being provided off-site – you just have to get there***



“The world will only need five computers” IBM Chairman Thomas J. Watson

– maybe we laughed too soon!

- *Sun Microsystems Chief Technology Officer Greg Papadopoulos thinks the idea will pan out eventually.*
- *"The world needs only five computers," [Papadopoulos said on his blog](#). He then listed seven--Google, eBay, Amazon.com, Microsoft, Yahoo, Salesforce.com, and what he called the Great Computer of China - *Stephen Shankland CNET**

News.com

Welcome to Edserf



A partnership between Nayland College and Nelson College for Girls.

TUANZ Rural UFB

Charles Newton Consulting Nov 2009

Edserf – our virtual server solution

- High quality switching
- Fat and Fast
- Professionally managed
- Shared capital and operating cost
- Once established – easily extended.



Way beyond the capacity of a single school.....

What are the big issues for rural education?

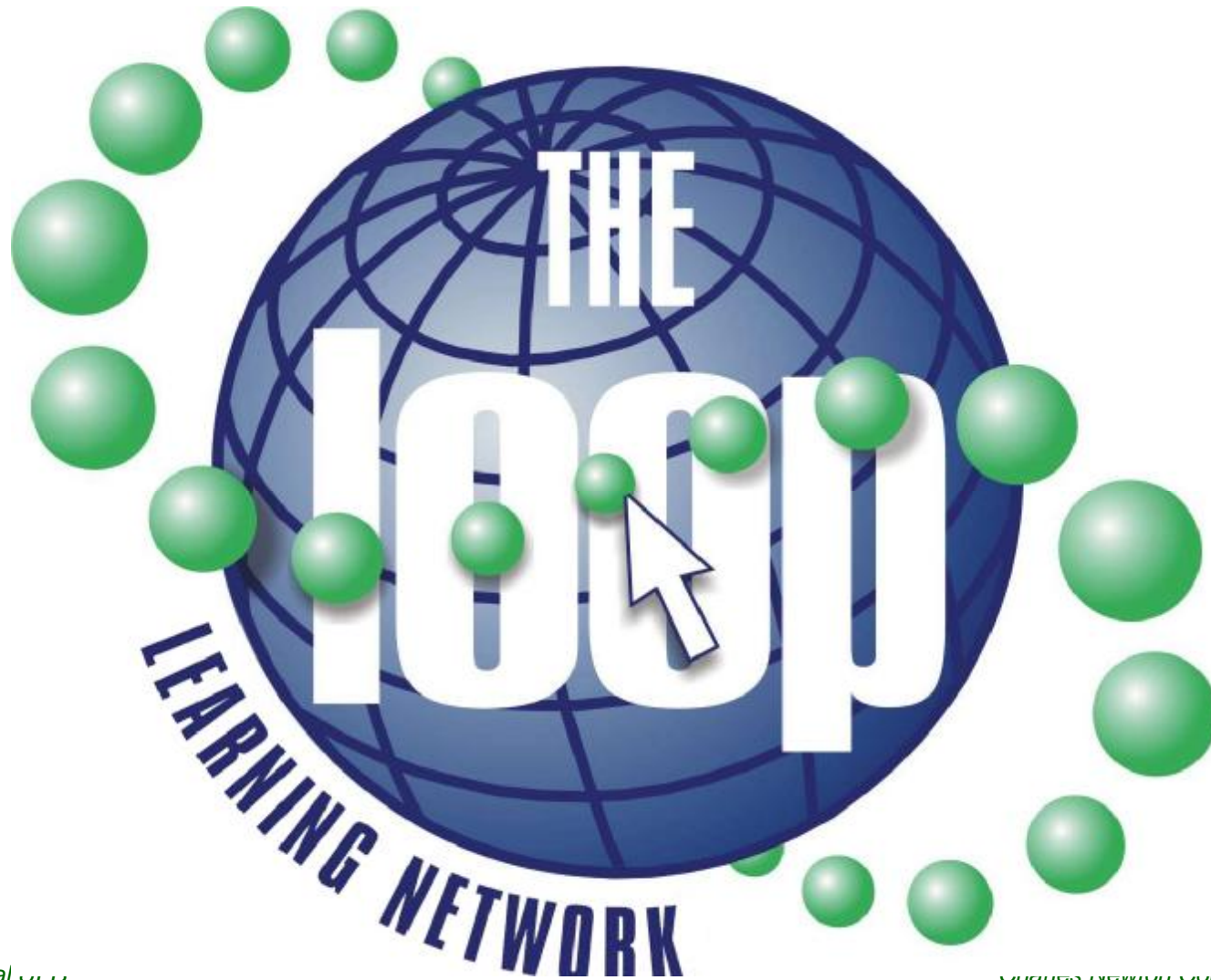
- **Inequity of broadband access**
- **The poor state of school networks**
- **A significant lack of ICT capacity in schools**
- **The lack of effective and affordable ICT services**
- **The “stand-alone” mentality of Tomorrow’s Schools – at a time when schools must collaborate if they are to take advantage of UFB**

So, how can UFB help?

- **Providing the access needed to participate**
– but 100megs???
- **Resolving the ICT infrastructure/capacity problem through centrally managed services/virtualisation**
- **Enabling access to affordable and effective resources and services**
- **Building capacity through wider local collaboration**

- ***“The future is all around usits not just widely distributed yet”***
- William Gibson

Case study - The Loop





Bringing on remote edge schools by (Probe) wireless



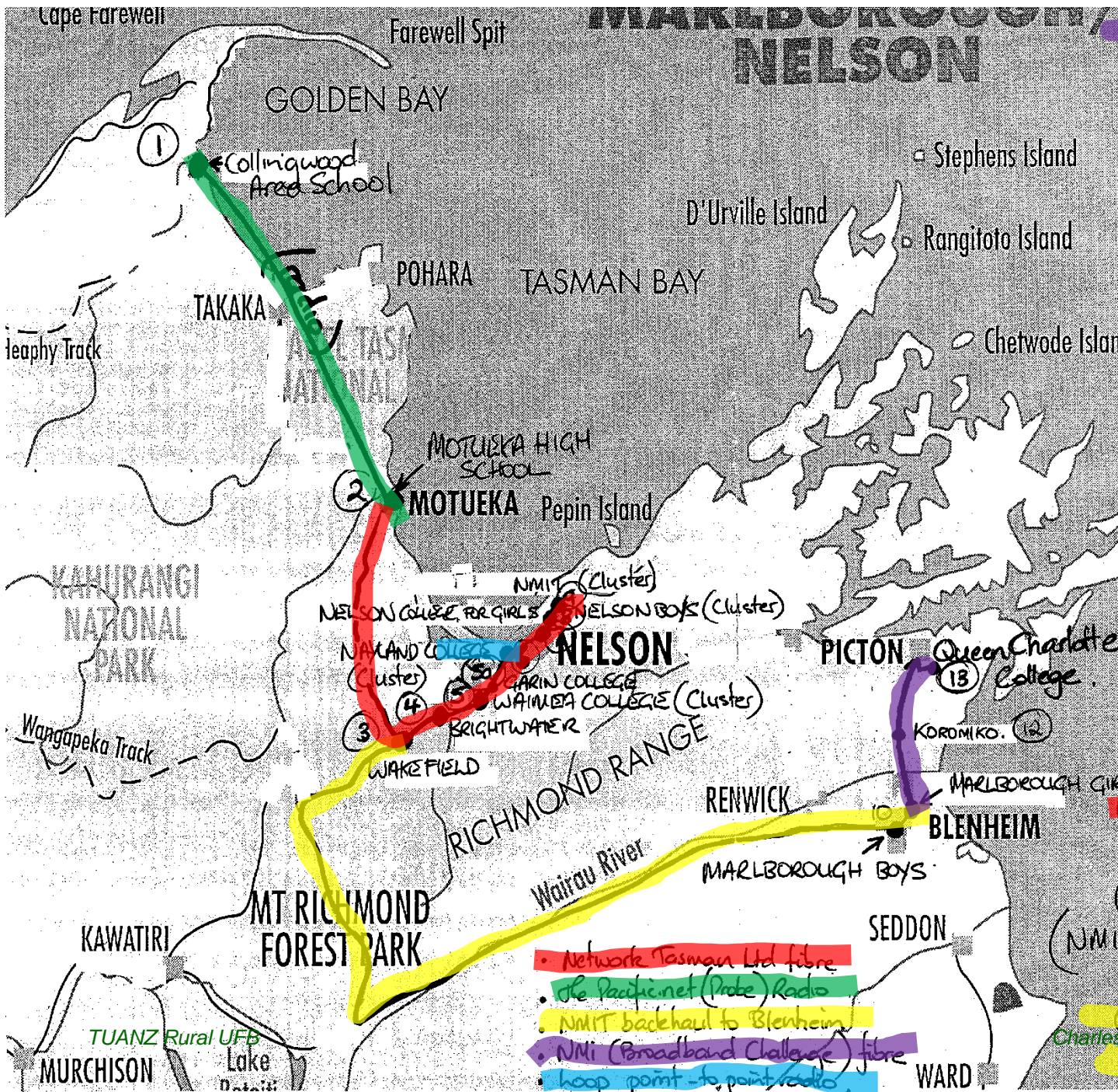


***Successfully utilising
point-to-point radio***



TUANZ Rural UFB

Nov 2009



- ### KEY
- 1 Collingwood Area School
 - 2 Motueka High School
 - 3 Wakefield School
 - 4 Brightwater School
 - 5 Waimica College and Henley School Haimed Intermediate St Pauls School Salisbury Girls College
 - 6 Garim College
 - 7 Nayland College and Nayland Primary Broadgreen Intermediate
 - 8 Nelson College for Girls
 - 9 Nelson Boys and Victory School
 - 10 Nelson Marlborough Institute of Technology and Maitai School Auckland Point
 - 11 Marlborough Boys College
 - 12 Marlborough Girls College
 - 13 Queen Charlotte College

- Network Tasman Ltd fibre
- De Pacific net (Probe) Radio
- NMI backhaul to Blenheim
- NMI (Broadband Challenge) fibre
- loop point - to point radio

Charles Newton Consulting Nov 2009

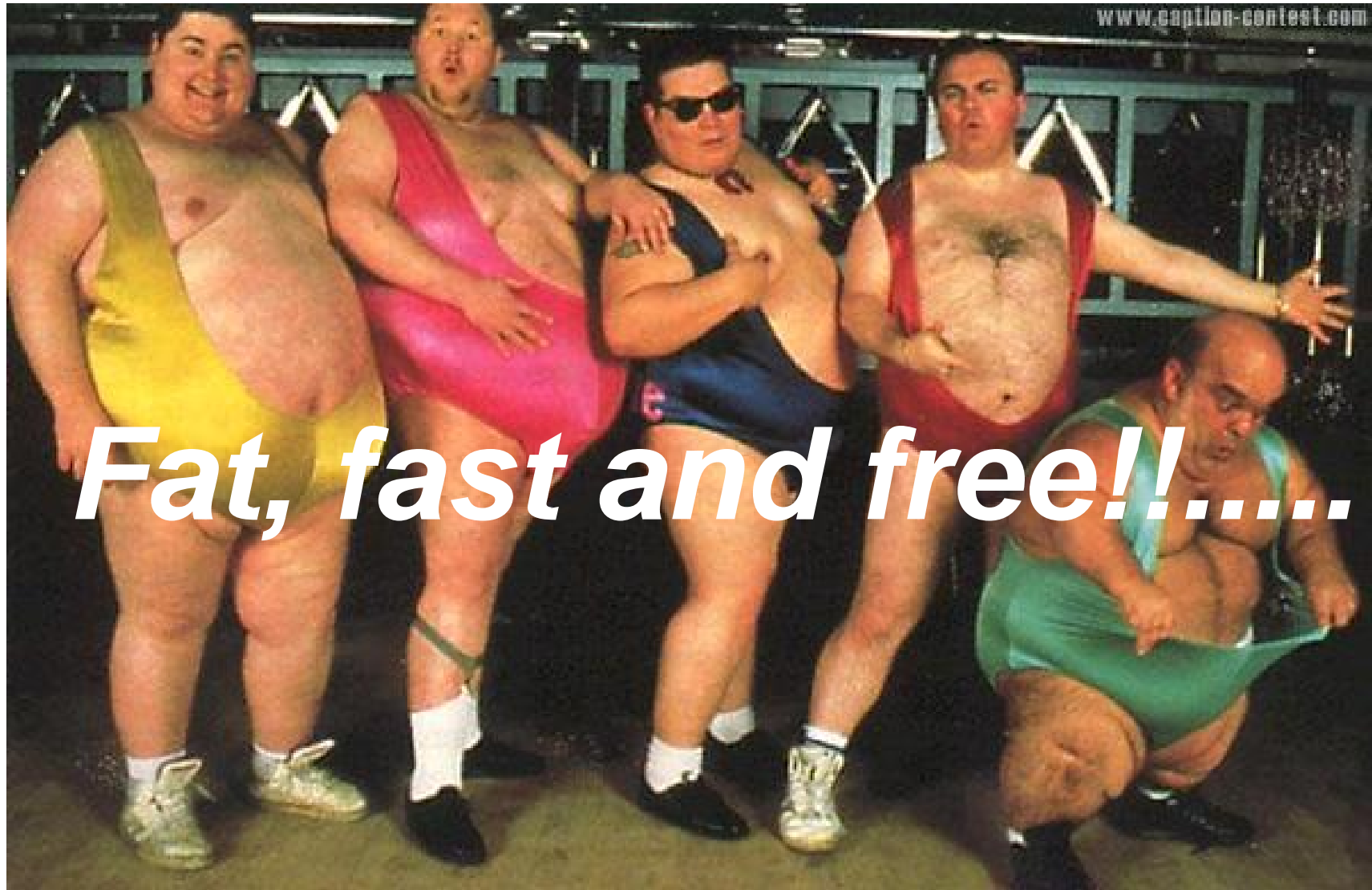
Loop Dimensions

- **Fibre:** Cross 4 networks, over 320 km geographic distance (nearly 500km true length) covers 3 districts
- **Size:** 29 schools (all sizes and types), 15000 schools users + NMIT
- **Internet:** Millions of hits/week 1.6 terabytes on incoming international traffic/mth.
- **Multimedia:** Over 1300 multimedia titles accessed per school. Over a thousands hits per week

Why we built it?

- **Leadership Vision** - collaborative network of networks
- **Opportunity** – Network Tasman Ltd support
- **Access** – to networks of people, applications and resources
- **Inevitability** – new level of demand and complexity
- **Necessity** – no suitable commercial offerings
- **Self defense** – individual schools too vulnerable

...to fashion a collaborative connectivity paradigm....far more than just a product....



Fat, fast and free!!.....

- *Open access*
- *Non-proprietary*
- *Accommodating*



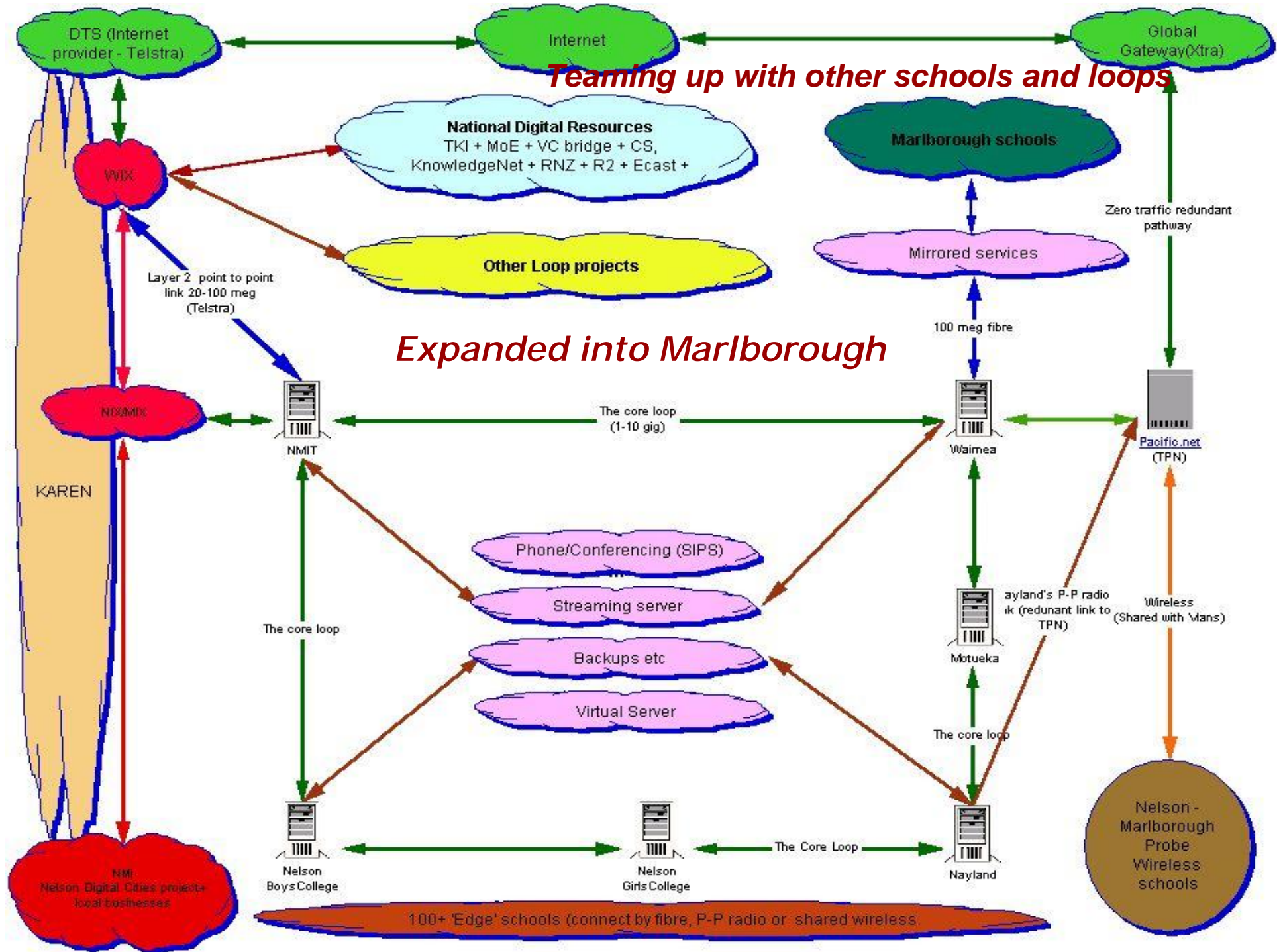
...."fat pipes not skinny straws"



"Two click access to the world ...regardless of school or location"



Effective and affordable "two click access" to the world

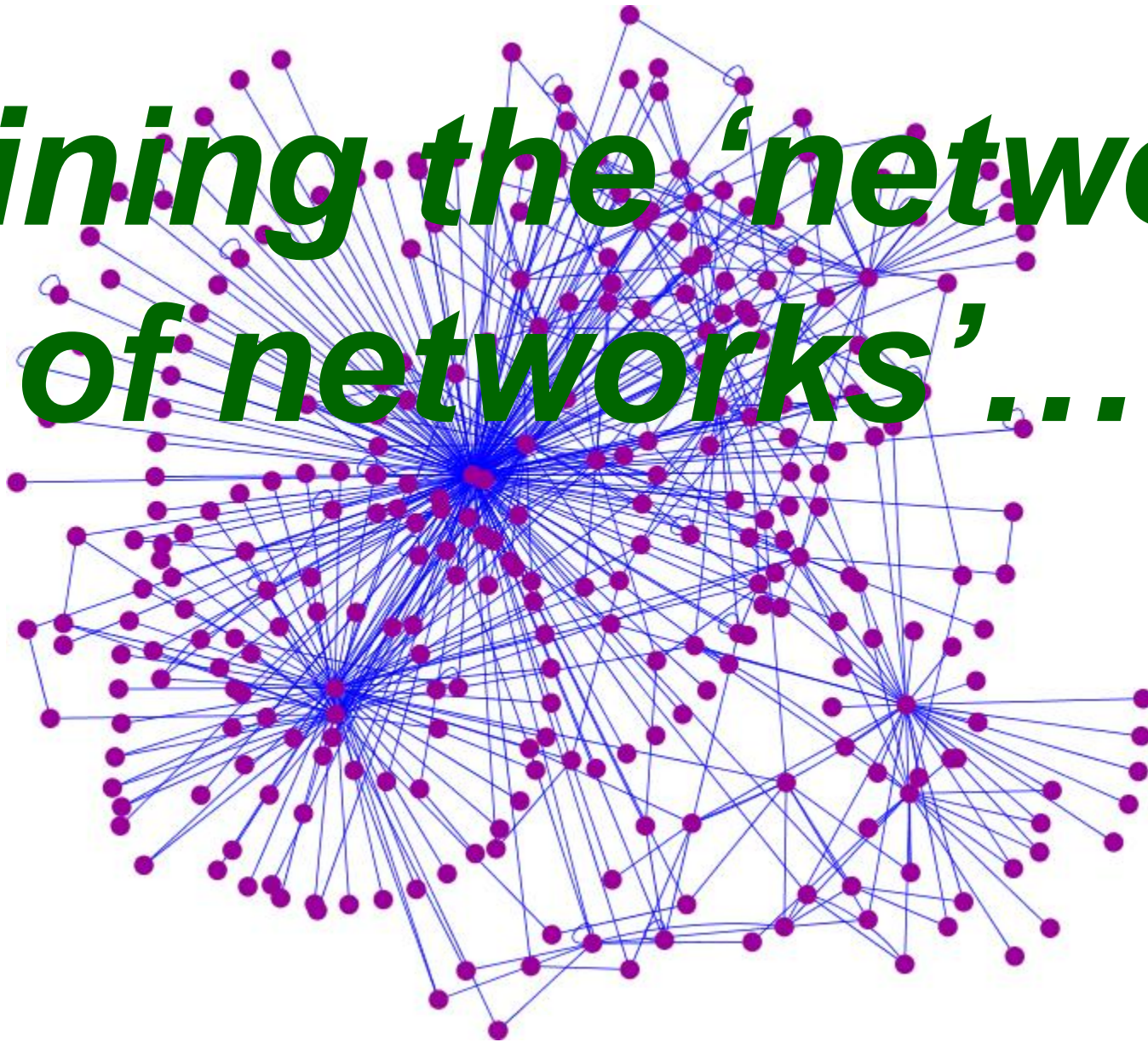


18000 users accessing services

- Certainty of quality Internet access
- Filtering and Monitoring
- CCTV IP Security Camera's
- Multimedia live – Video Conferencing, Skype, desktop conferencing, VoIP, streaming video...
- Multimedia archives - Digital Resources, Clickview
- Offsite Backup and Recovery
- ICT Management tools and update services
- Inter-school and community radio
- Access to KAREN, the NEN and 'cloud computing'

...an ICT framework way beyond any single school's capacity

Joining the 'network of networks'...



- **NayNet** to



- **the Loop** to **the NIX**



- to **NMi MUSH**
- to **other loops,**
- to **KAREN** and the **NEN**

- to **the World**

But what's the Loop really all about – people!

- **Aligning communities**
- **Collaborating**
- **Sharing**
- **Supporting**
- **Empowering**
- **Innovating**

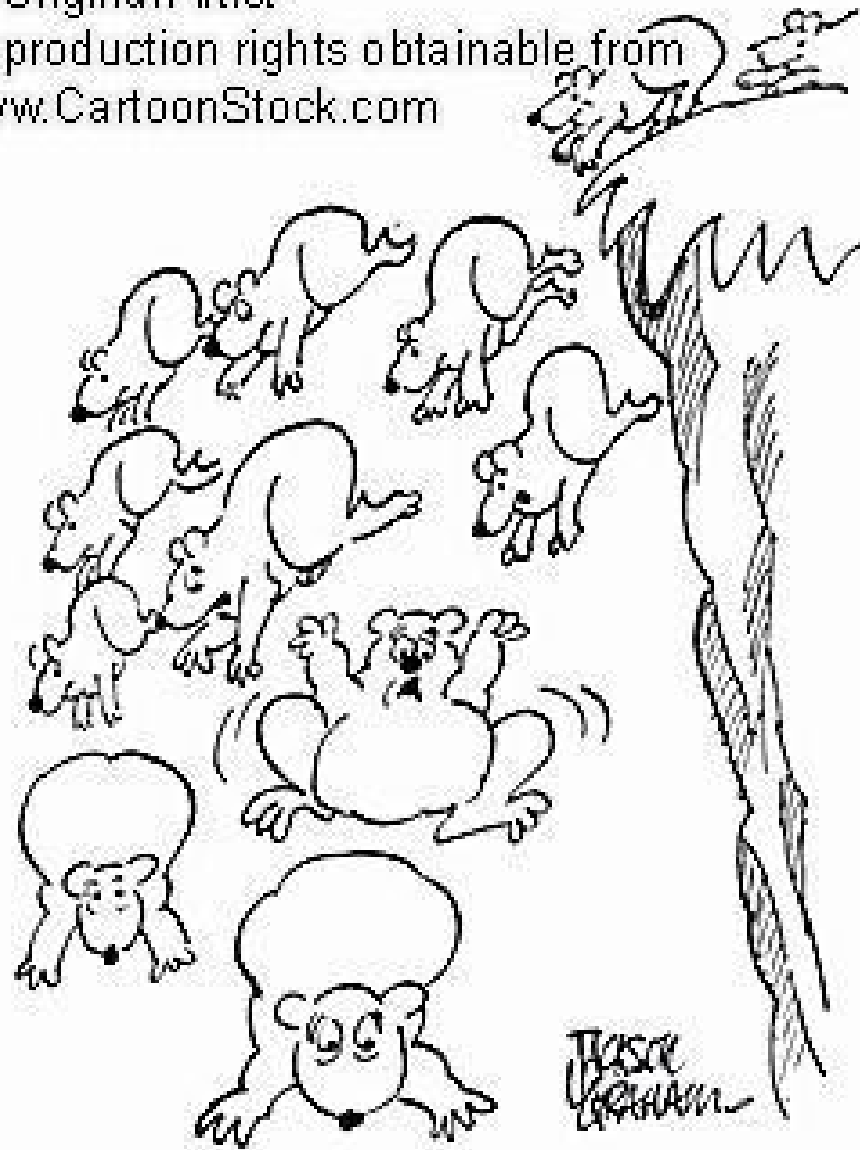


*“Seeking synergies not replication,
cooperation not competition”*

© Original Artist

Reproduction rights obtainable from

www.CartoonStock.com



"MY GOD! — I MUST HAVE BEEN MAD
THINKING THERE WAS SAFETY IN NUMBERS!"

Real danger of *“picking the eyes”*

**Aggregations and the National
Education Network must be inclusive**

**Must not just take the big schools
and the ‘sexy’ services**

***“We can’t leave smaller, isolated schools as
stranded islands drowning in a rising tide of
broadband”***

Call to Action!!

- Regional partnerships with urban
- Collaboration between schools – and with other local UFB consumers
- Focussed advocacy!

We owe this to our children

