

SWIN
BUR
NE

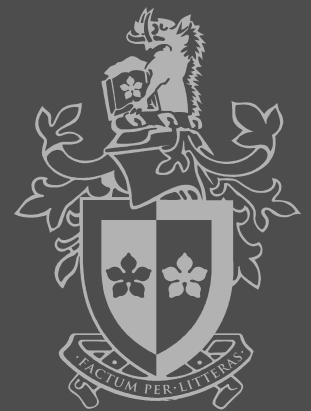
SWINBURNE
UNIVERSITY OF
TECHNOLOGY

NBN for Small Business

30 August 2012

Grenville Armitage

garmitage@swin.edu.au



Predictions are hard....

“I think there is a world market for maybe five computers.” (Thomas Watson, chairman of IBM, 1943)

“There is no reason for any individual to have a computer in their home.” (Ken Olsen, president, chairman and founder of Digital Equipment Corp., 1977)

“The Americans have need of the telephone, but we do not. We have plenty of messenger boys.” (Sir William Preece, chief engineer of the British Post Office, 1876)

With that in mind, I offer some thoughts....

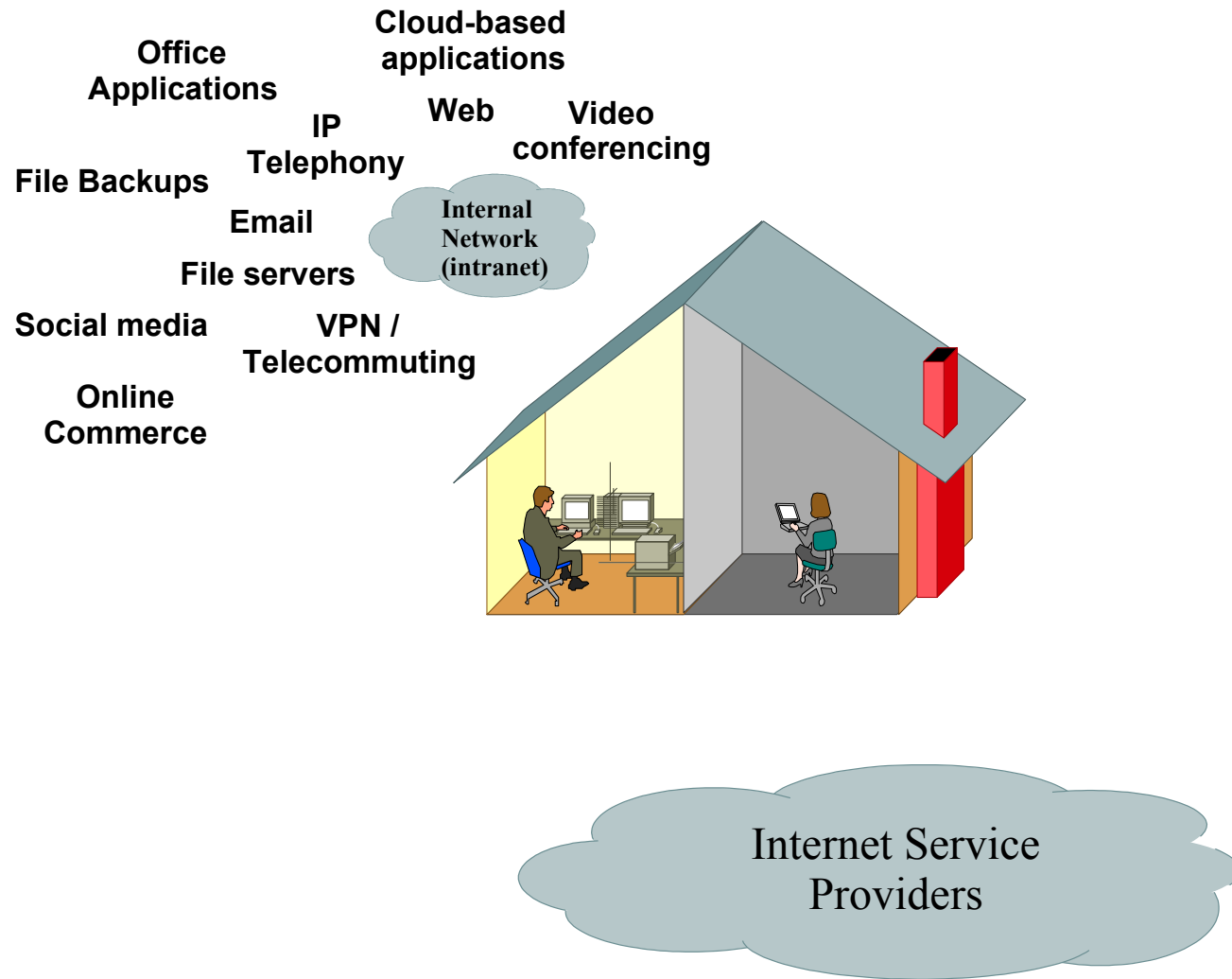
Speed matters

- NBN fiber speeds (and reach) are significant
 - 100/40, 50/20 & 25/5 Mbit/sec *really differs* from ADSL2+
 - NBN fiber speeds available over greater distances
- Fast enough to Get Things Done Now
 - Enhances an eco-system of interlinked businesses

Location, location, location...

- Distance impacts total network performance
 - The speed of light: Not just a good idea, its the law!
 - 100s of milliseconds → degrades apparent bandwidth
- “Cloud” service provider locations do matter
 - Out-source your networked services.... on-shore

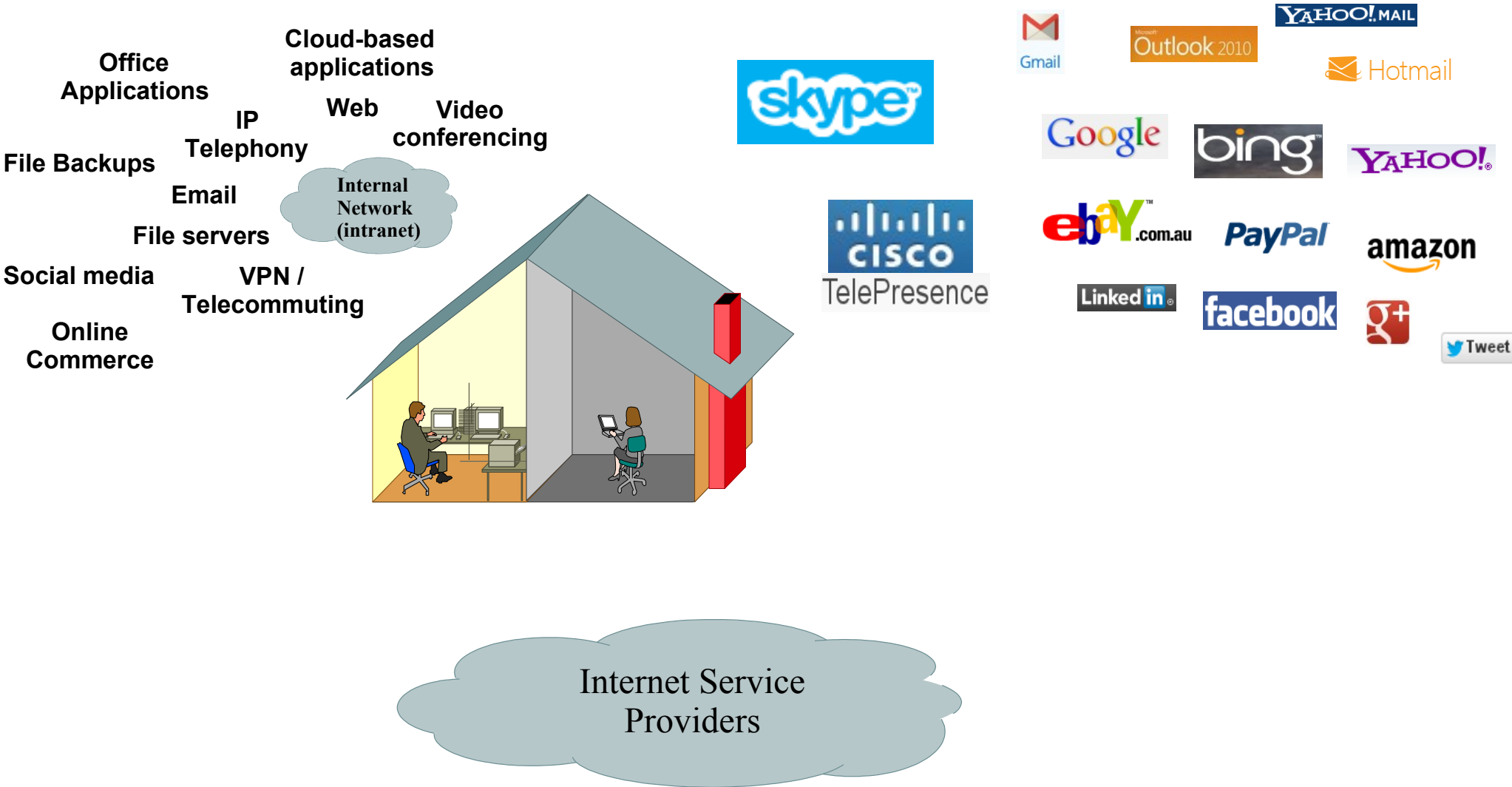
Services for small business – external



Services for small business – external



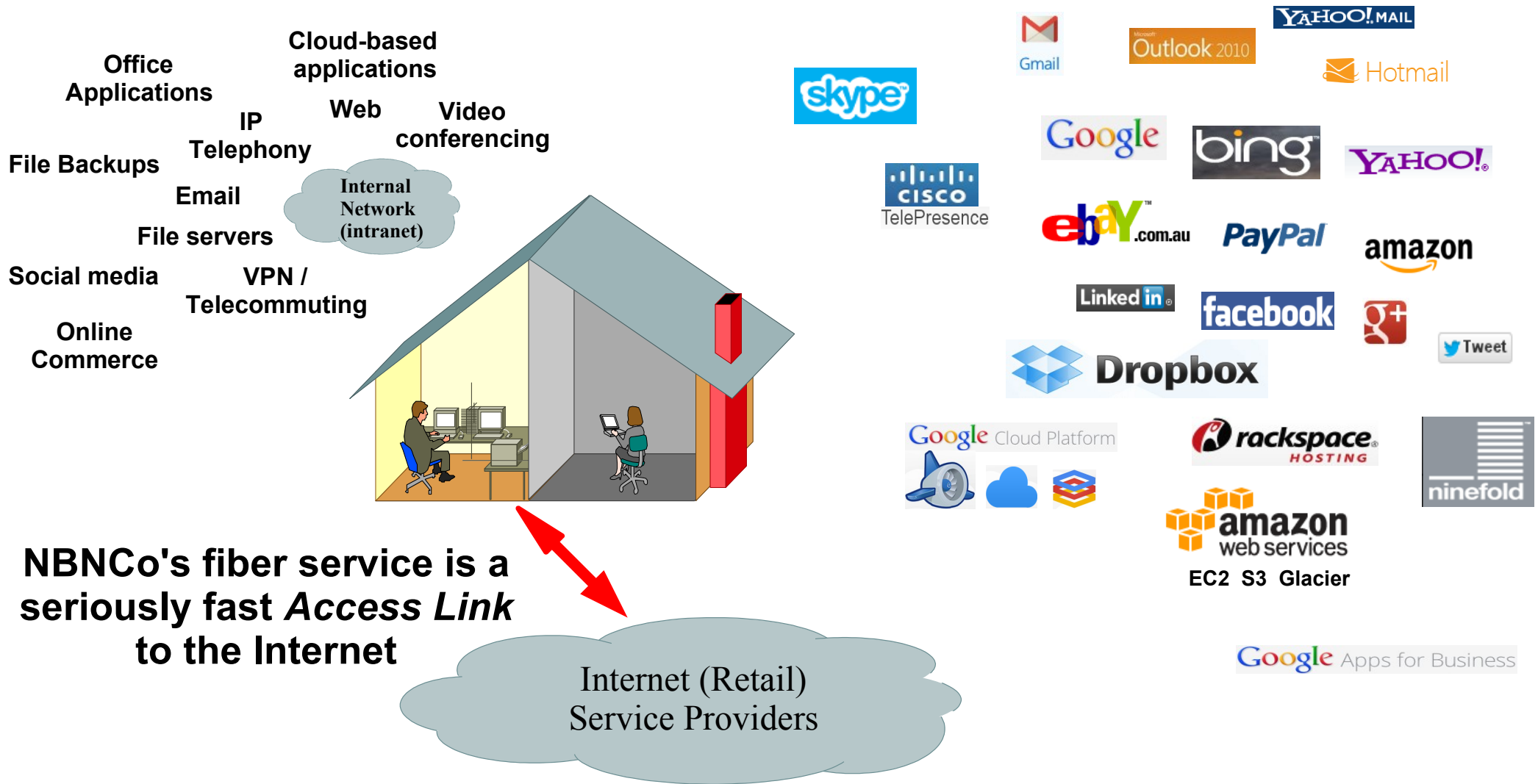
Services for small business – external



Services for small business – external



Access Link speeds....



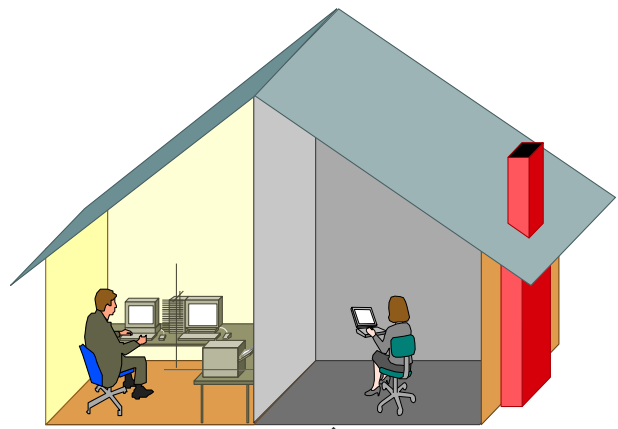
NBNCo's fiber service is a seriously fast Access Link to the Internet

Uplink & downlink speeds differ

Office Applications
 File Backups
 Social media
 Online Commerce

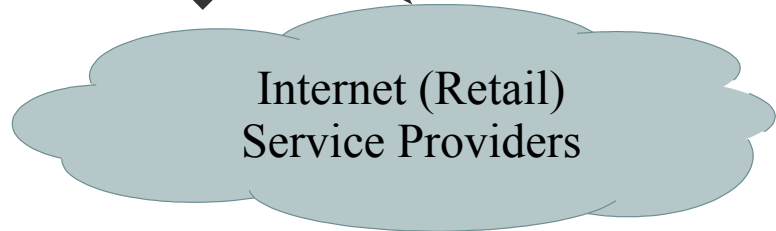
Cloud-based applications
 IP Telephony
 Email
 File servers
 VPN / Telecommuting

Web
 Video conferencing
 Internal Network (intranet)



Downlink (in to your office)
 NBN fibre: 100, 50, 25 Mbps

Uplink (out of your office)
 NBN fibre: 40, 20, 5 Mbps

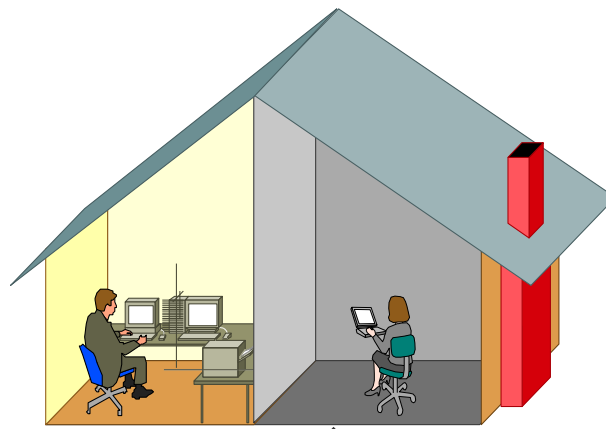


Uplink matters when pushing data

Office Applications
 File Backups
 Social media
 Online Commerce

Cloud-based applications
 Web
 Video conferencing
 Internal Network (intranet)

IP Telephony
 Email
 File servers
 VPN / Telecommuting



Downlink (in to your office)
 NBN fibre: 100, 50, 25 Mbps

Uplink (out of your office)
 NBN fibre: 40, 20, 5 Mbps

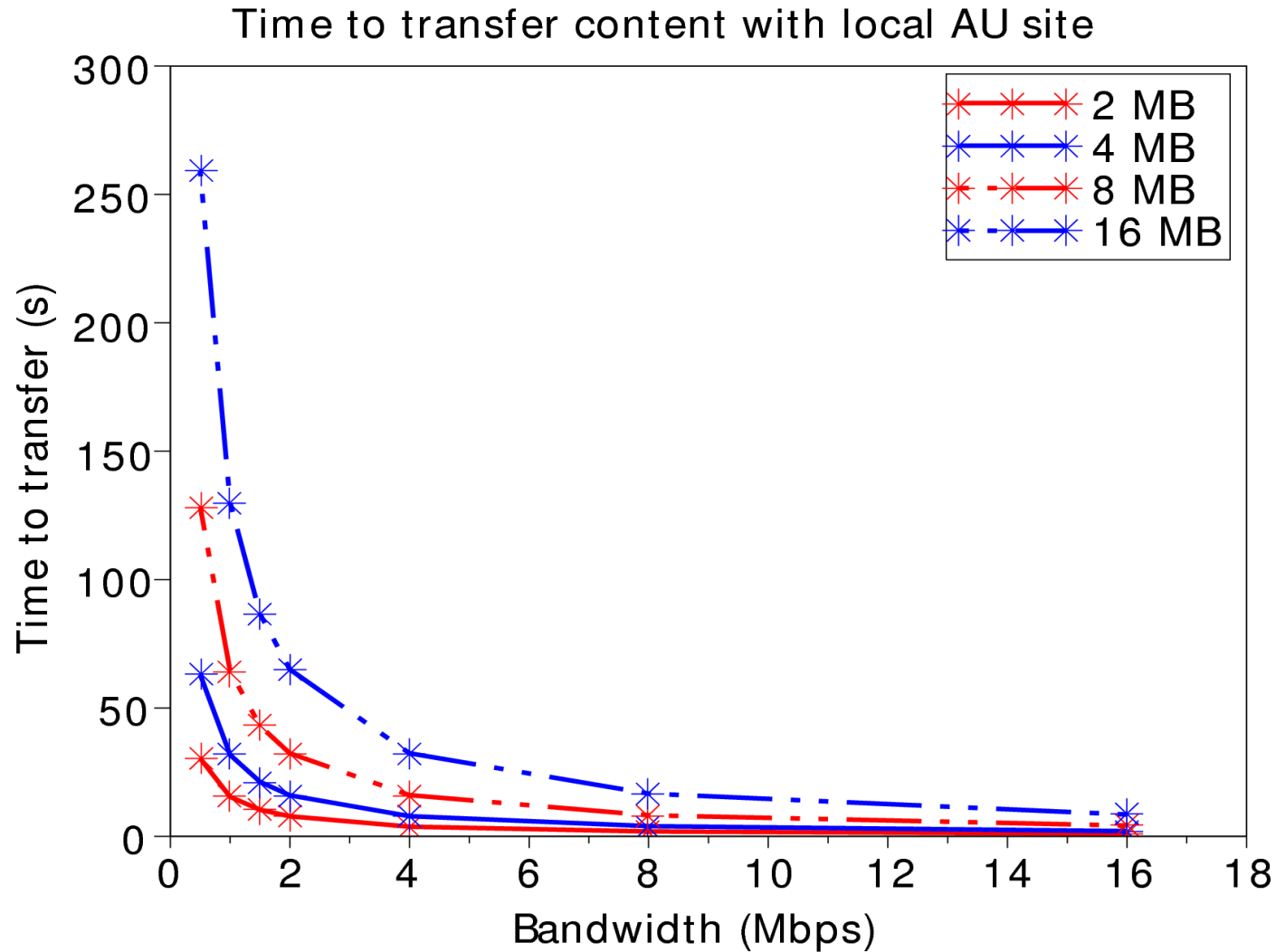
Internet (Retail)
 Service Providers

(Shared among multiple staff and machines....)

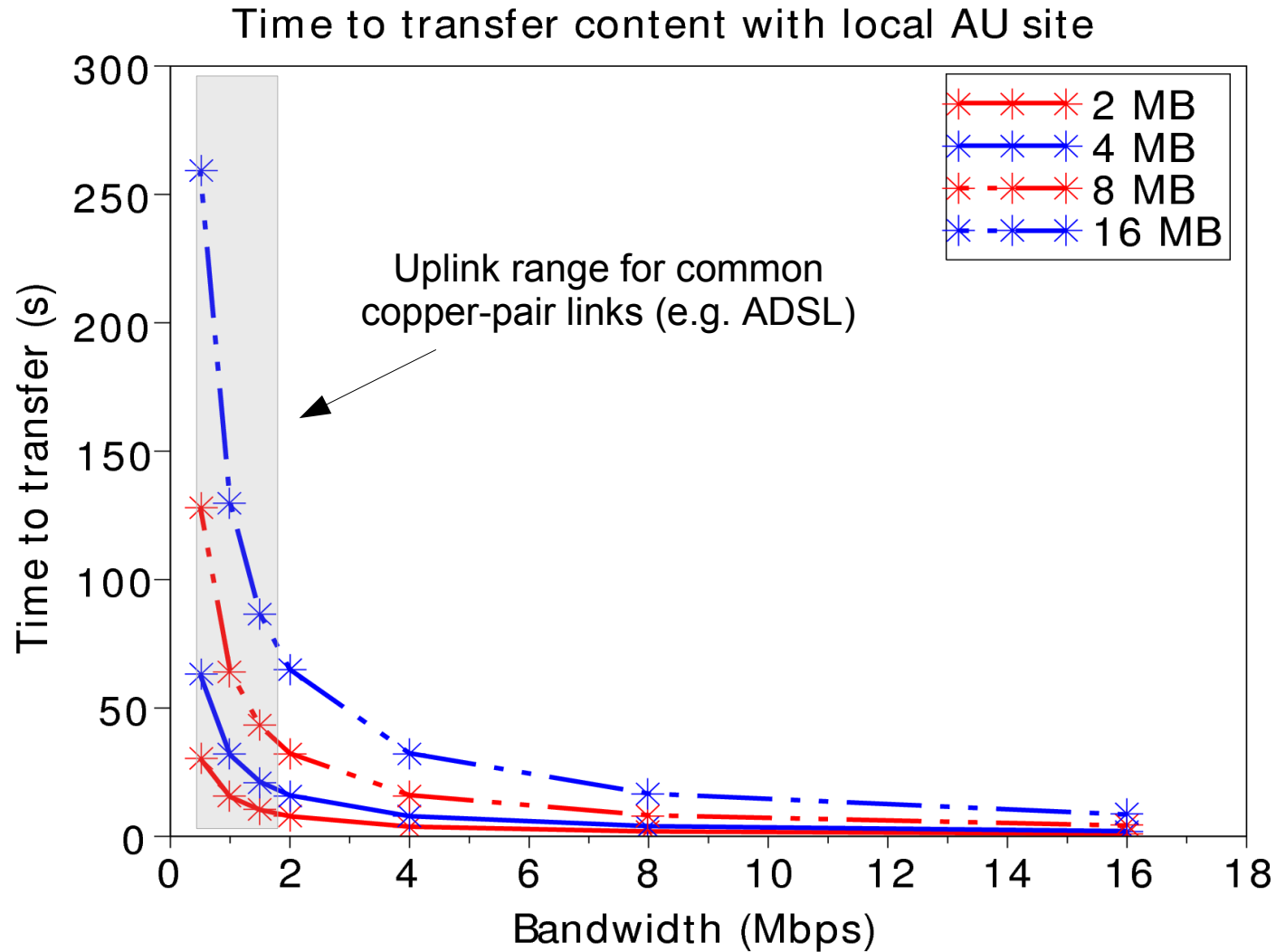
What sort of traffic?

- Web-based apps rely on lots of small data transfers
 - Images & objects in pages, hidden javascript,
 - Each transfer grabs whatever bandwidth is available
- Voice/video apps *stream content* at modest rates
 - Actual rates depend on image quality and movements
- Remotely hosted productivity apps, remote file storage, off-site backups, inter-office collaboration
 - Large multi-megabyte chunks of data
 - Thousands of smaller chunks of data
 - Each transfer grabs whatever bandwidth is available

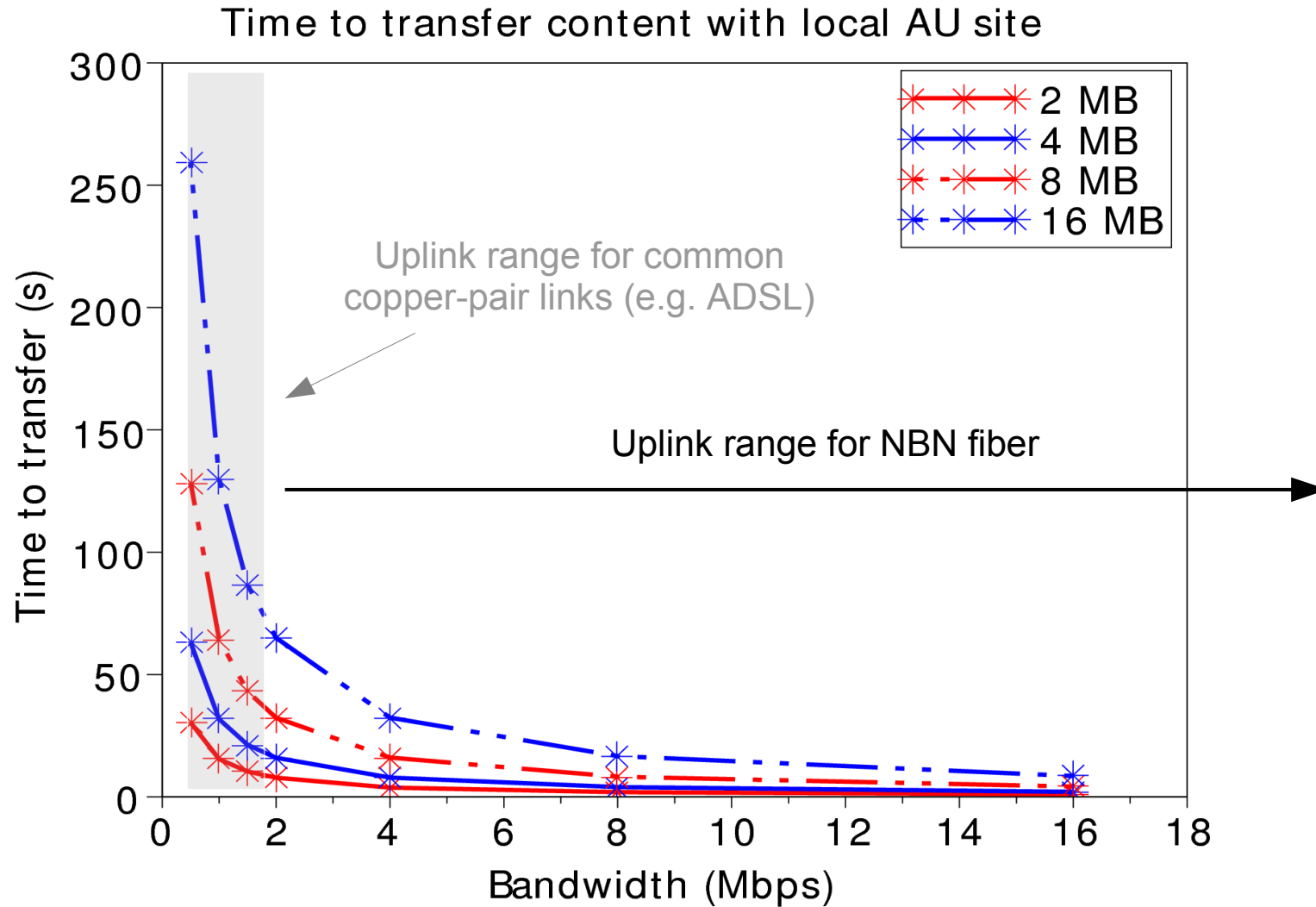
The heady benefits of speed....



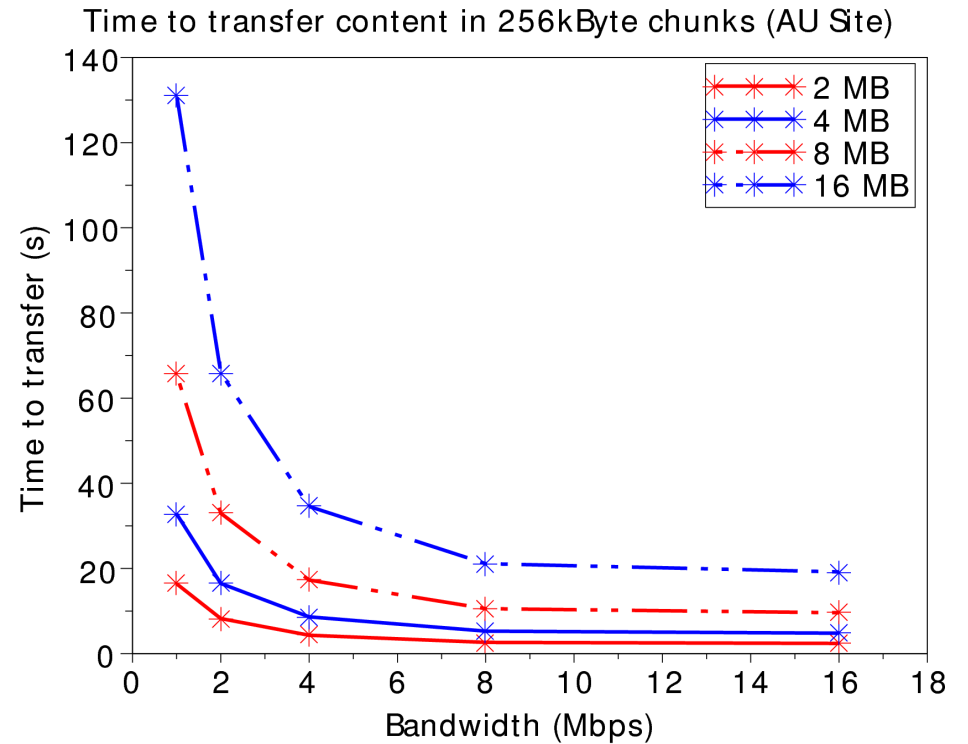
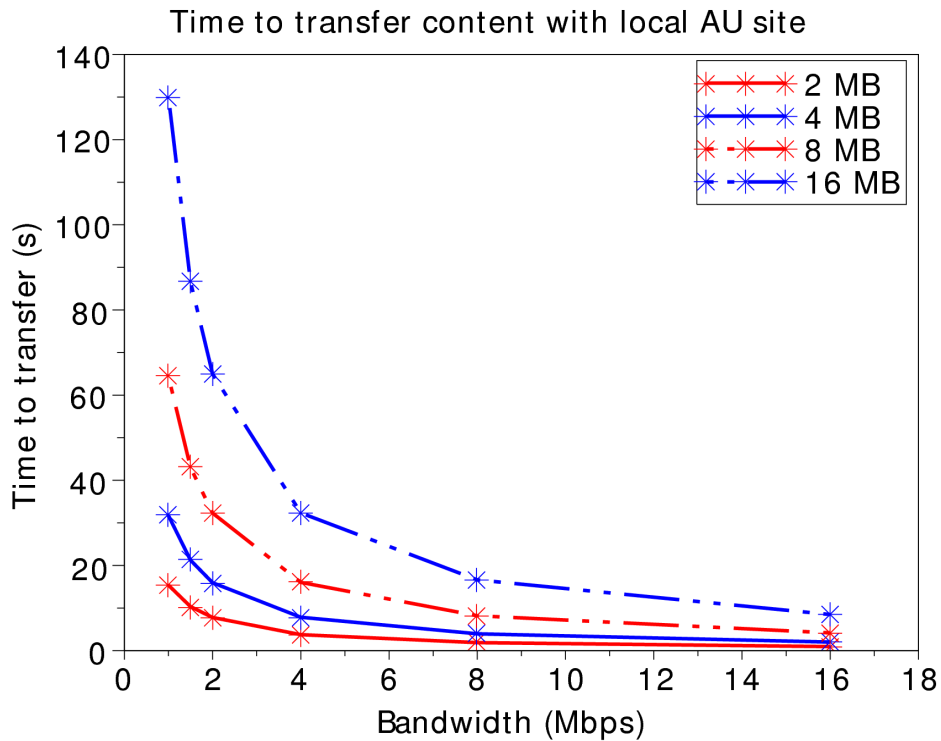
The heady benefits of speed....



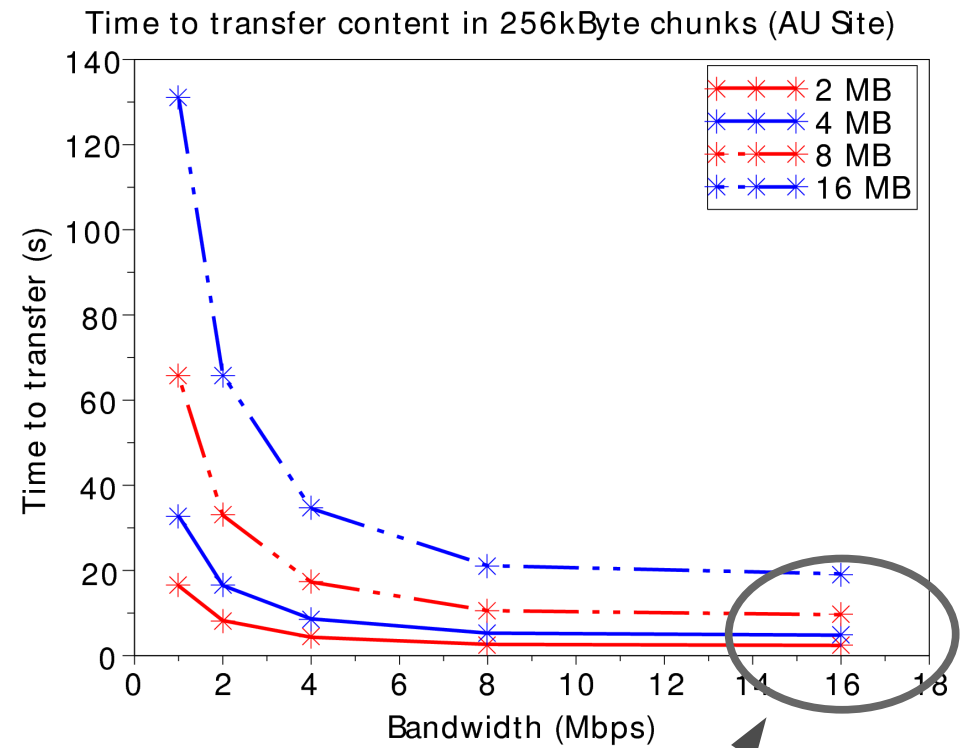
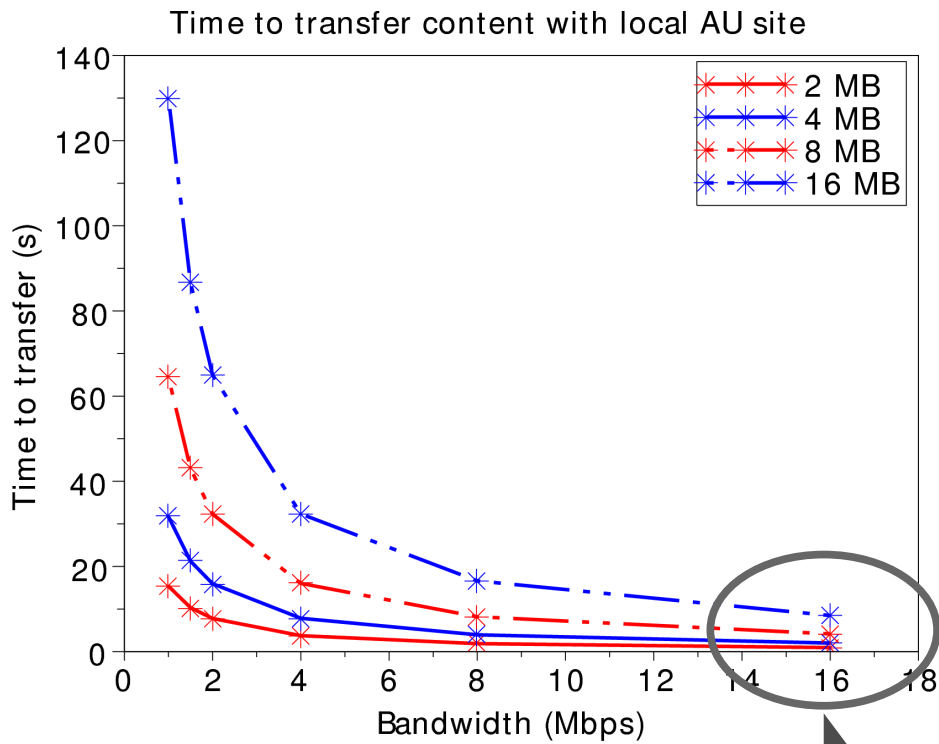
The heady benefits of speed....



When data is in smaller chunks...



When data is in smaller chunks...

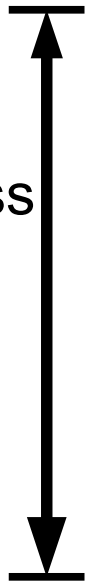


At high speeds, sending data in large blocks is noticeably faster than lots of sequential small transfers

Example: Skype bandwidth

Call type	Minimum download / upload speed	Recommended download / upload speed
Calling	30kbps / 30kbps	100kbps / 100kbps
Video calling / Screen sharing	128kbps / 128kbps	300kbps / 300kbps
Video calling (high-quality)	400kbps / 400kbps	500kbps / 500kbps
Video calling (HD)	1.2Mbps / 1.2Mbps	1.5Mbps / 1.5Mbps
Group video (3 people)	512kbps / 128kbps	2Mbps / 512kbps
Group video (5 people)	2Mbps / 128kbps	4Mbps / 512kbps
Group video (7+ people)	4Mbps / 128kbps	8Mbps / 512kbps

Business use?



<https://support.skype.com/en-us/faq/FA1417/how-much-bandwidth-does-skype-need>

Example: Telepresence bandwidth

- “*Cisco TelePresence [....] perform best using....*”
 - IP quality-of-service (QoS) connections
 - 3 to 4 Mbps for 1080p resolution
 - 1 to 3 Mbps for 720p resolution
 - (per screen)



<http://www.prlog.org/10994332-telepresence.jpg>

Example: Telepresence bandwidth

- “*Cisco TelePresence [....] perform best using....*”
 - IP quality-of-service (QoS) connections
 - 3 to 4 Mbps for 1080p resolution
 - 1 to 3 Mbps for 720p resolution
 - (per screen)

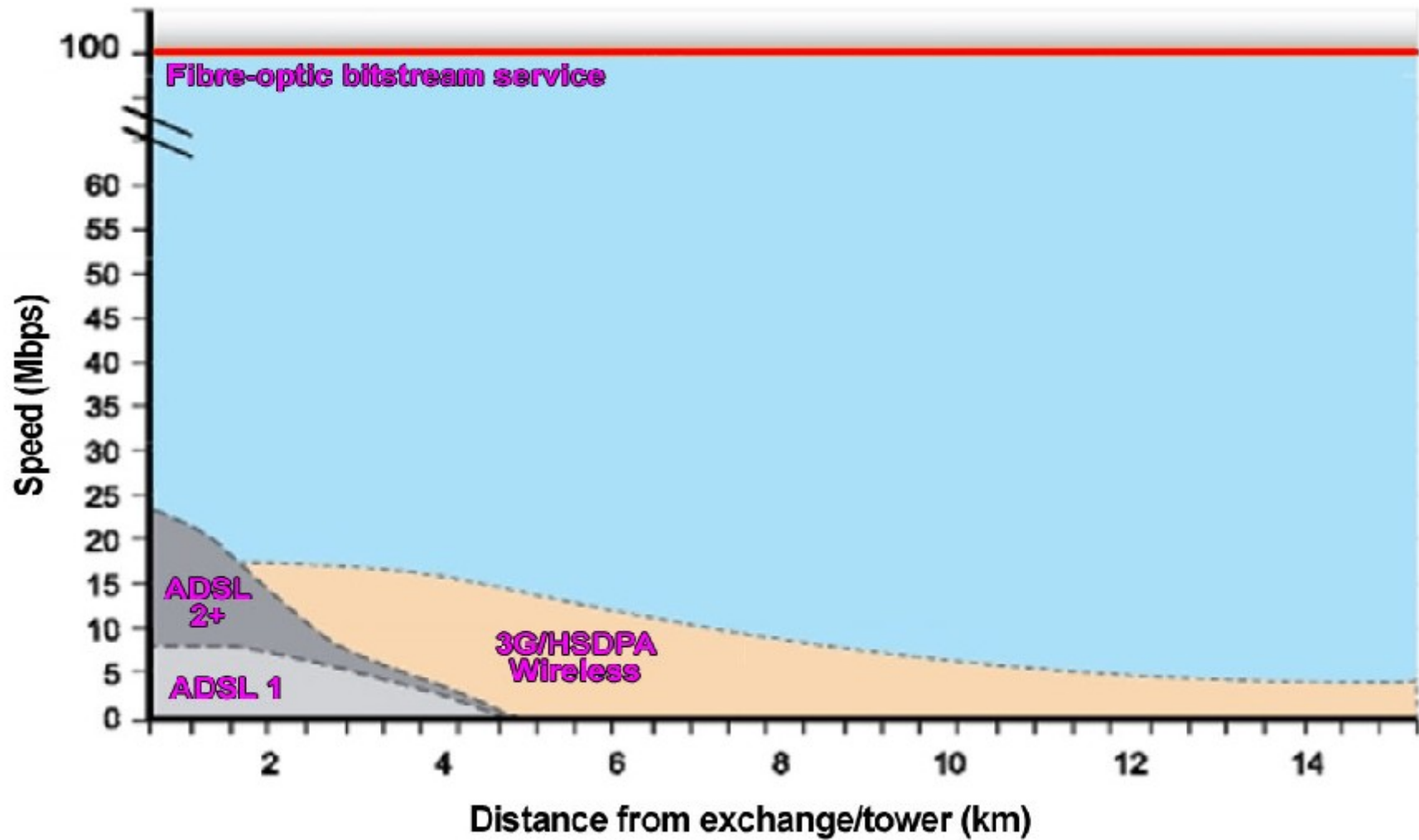
An important caveat here:
If “QoS” not available, *safe*
bandwidth requirements
could be many times higher!



<http://www.prlog.org/10994332-telepresence.jpg>

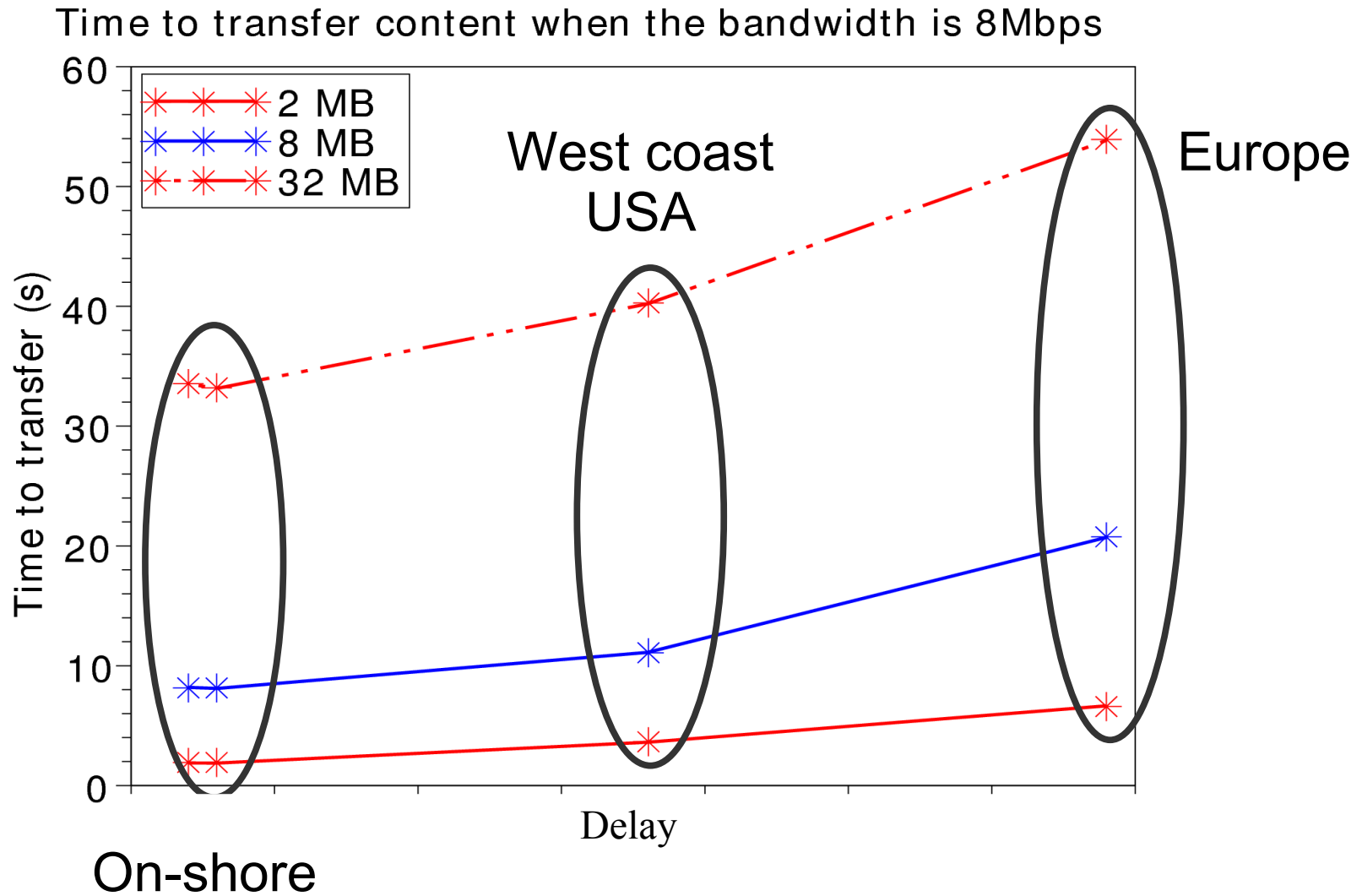
An aside: Speed with the alternatives

Fibre Vs ADSL Vs 3G/HSDPA Wireless

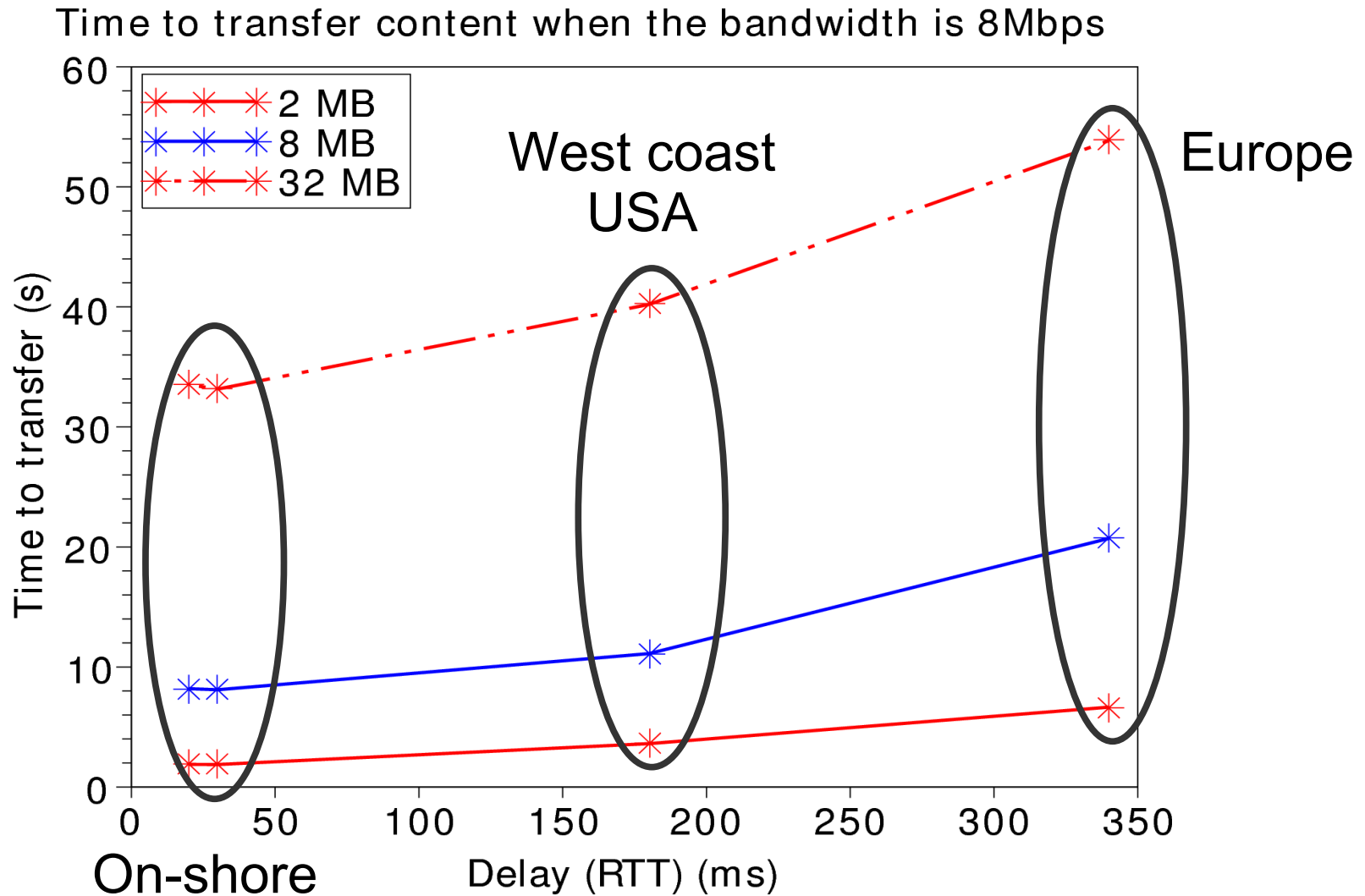


<http://nbnmyths.wordpress.com/why-not-wireless/>

The headache of latency....

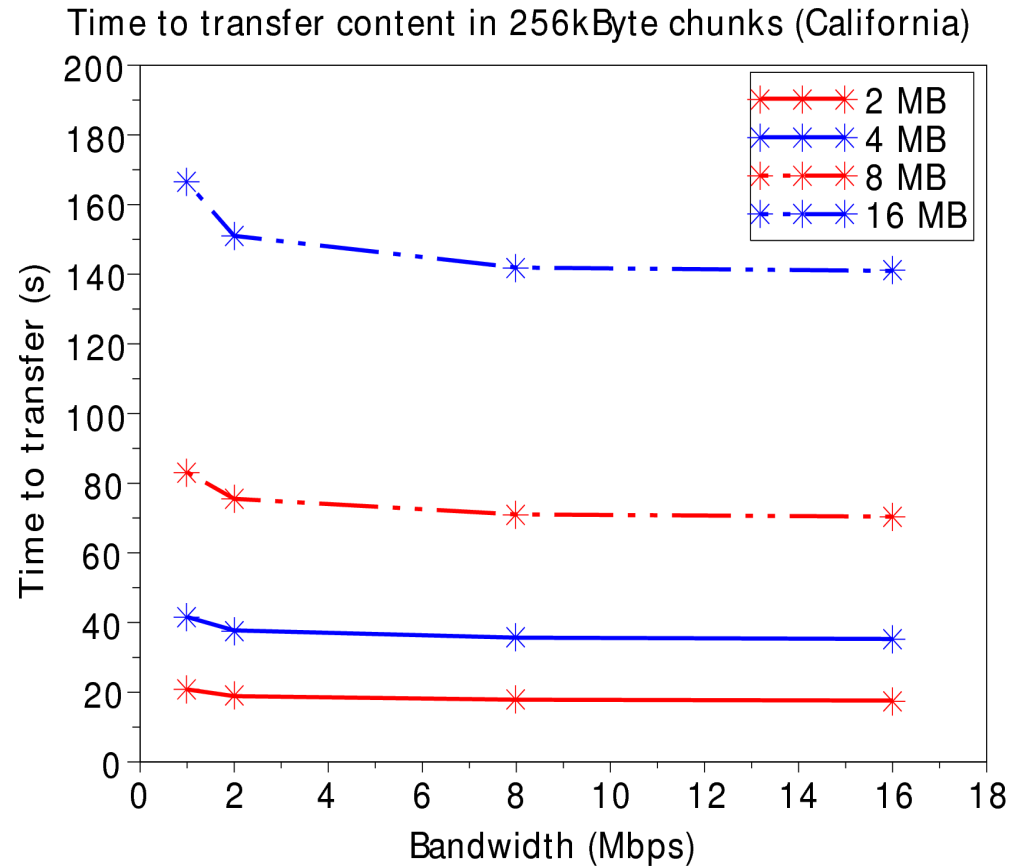
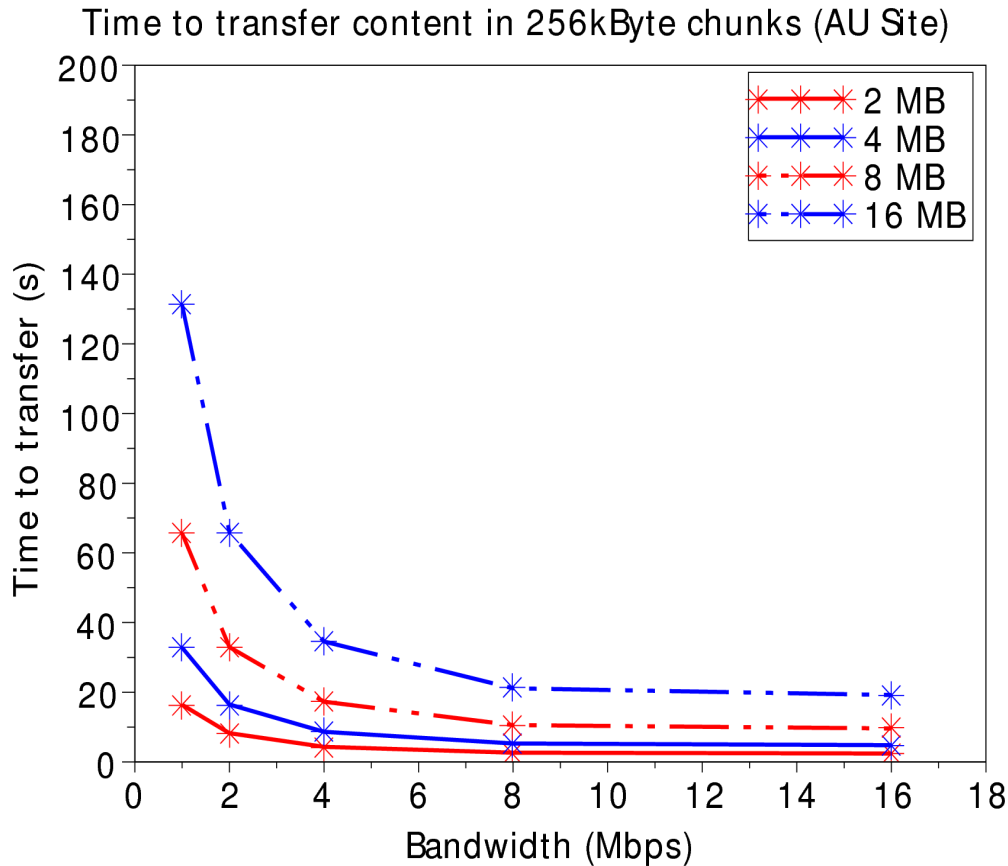


The headache of latency....



Latency, and data in smaller chunks

Consider locating remote data storage in Australia vs the west coast USA



Security and the “Cloud”

- NBN speeds → the “Cloud” is attractive & plausible
- Using the “cloud” externalises:
 - Infrastructure
 - Tech support
 - Security
- But you've also “externalised” your data
 - More legal avenues to access? (non-AU laws)
 - More people vulnerable to bribes/coercion for access?

Thank you for listening....