



QoS in a converged World

Workshop on "Management of Network Virtualisation", Brussels
6th November 2007



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BT's main research site - Adastral Park



one of the highest concentrations of technologists in Europe.

110 acres
5000 + people



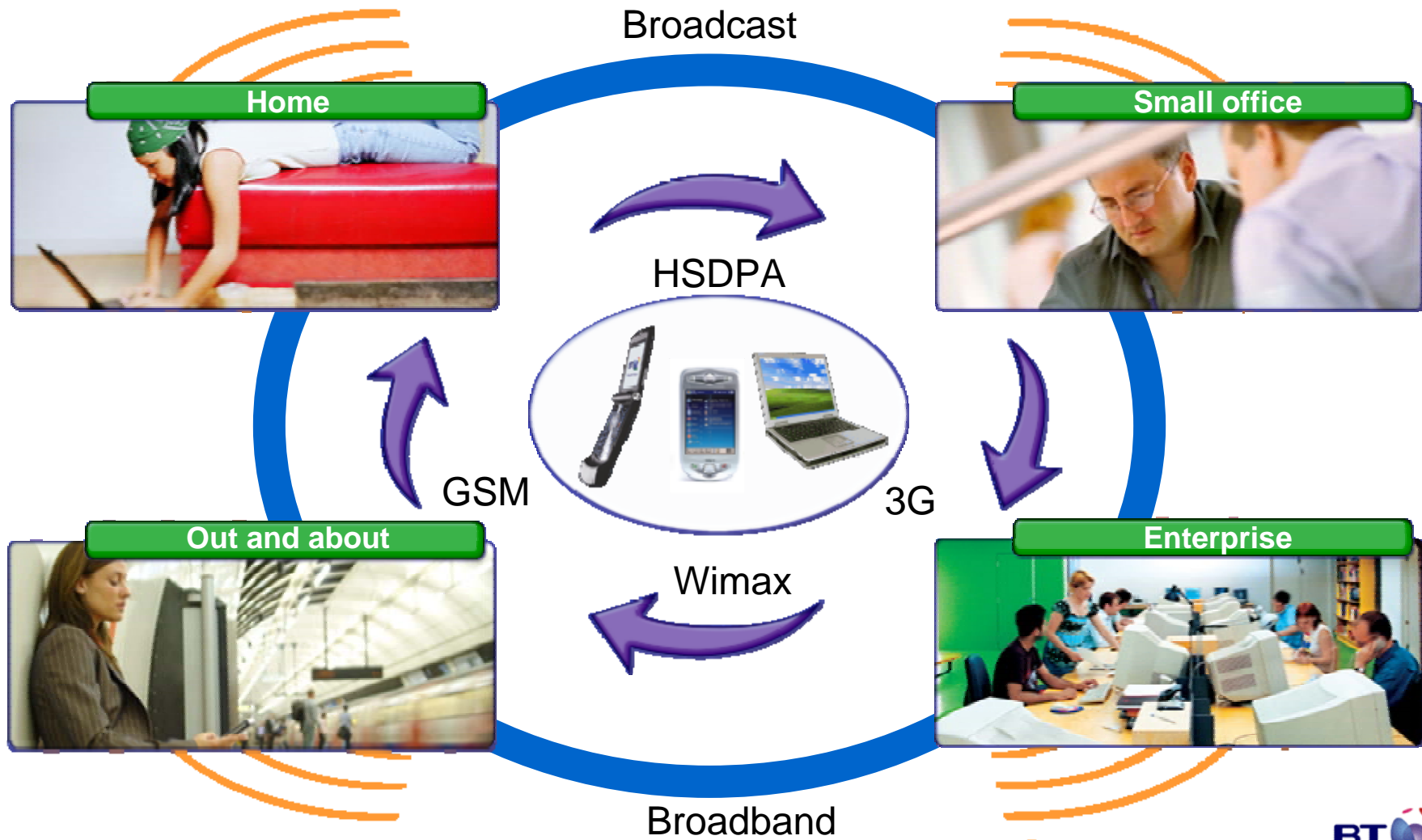
Adastral  Park

Agenda

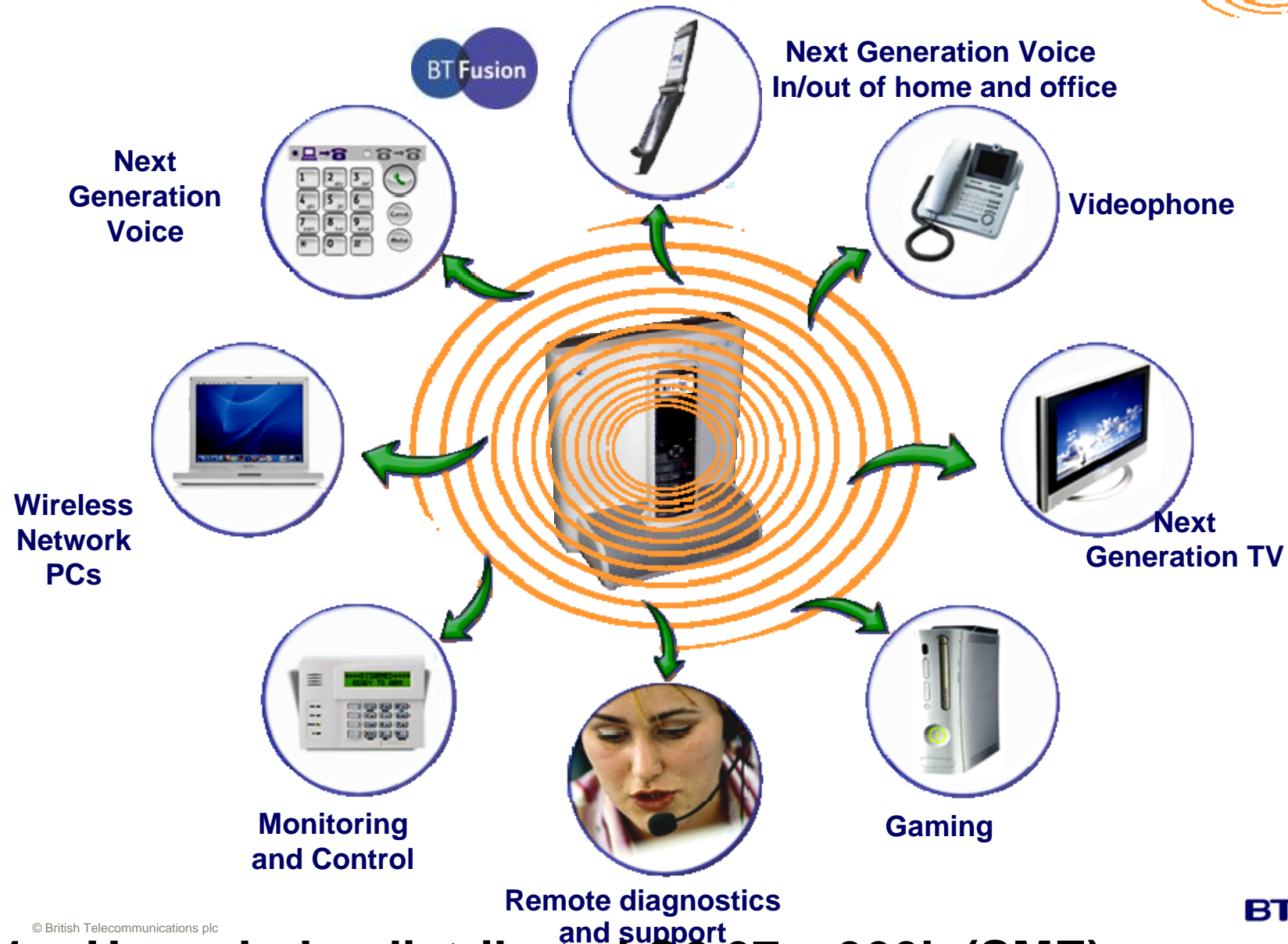
- What does convergence mean?
- 21C - an all-IP convergence platform
- Who benefits from QoS ?
- Current solution
- Elegant (IMS) solution – can we sell it?
- Wireless issues – Media Independent Handover
- Conclusions

Convergence?

- anywhere, anytime, anyplace



BT Home Hub – Home and small office

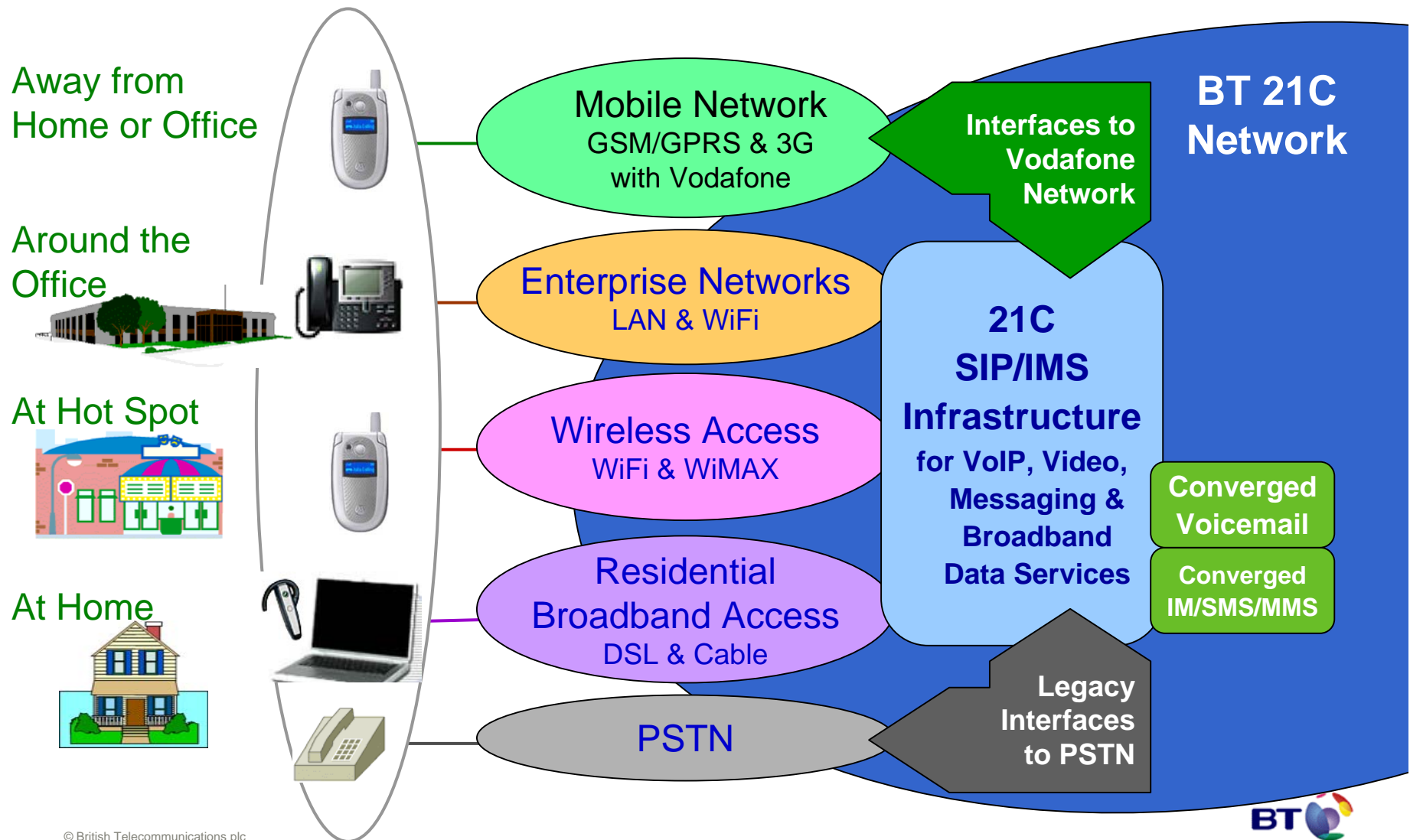


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1m Home hubs distributed Q2 07 + 300k (SME)



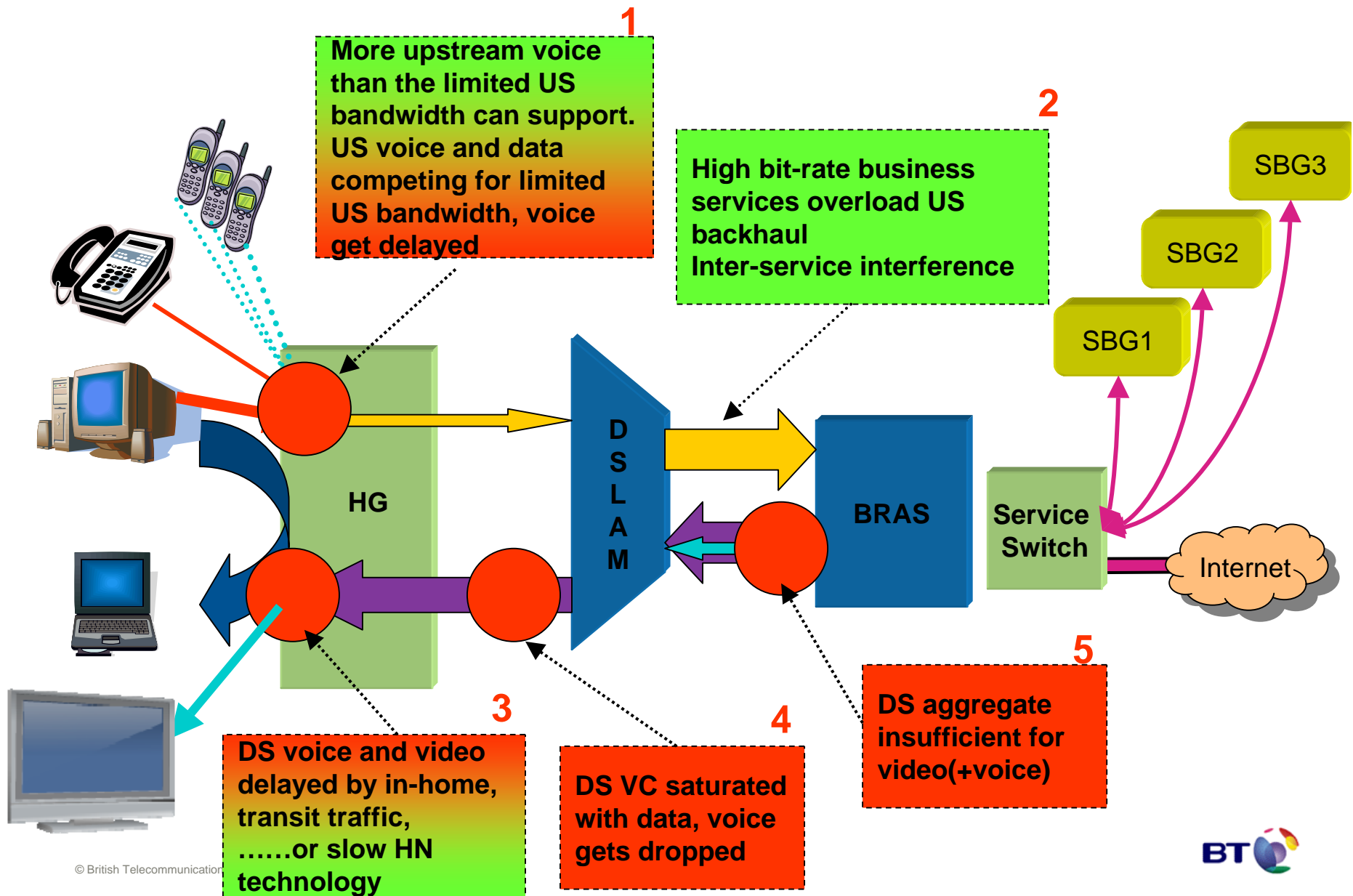
21C - A Platform for Mobility & Convergence



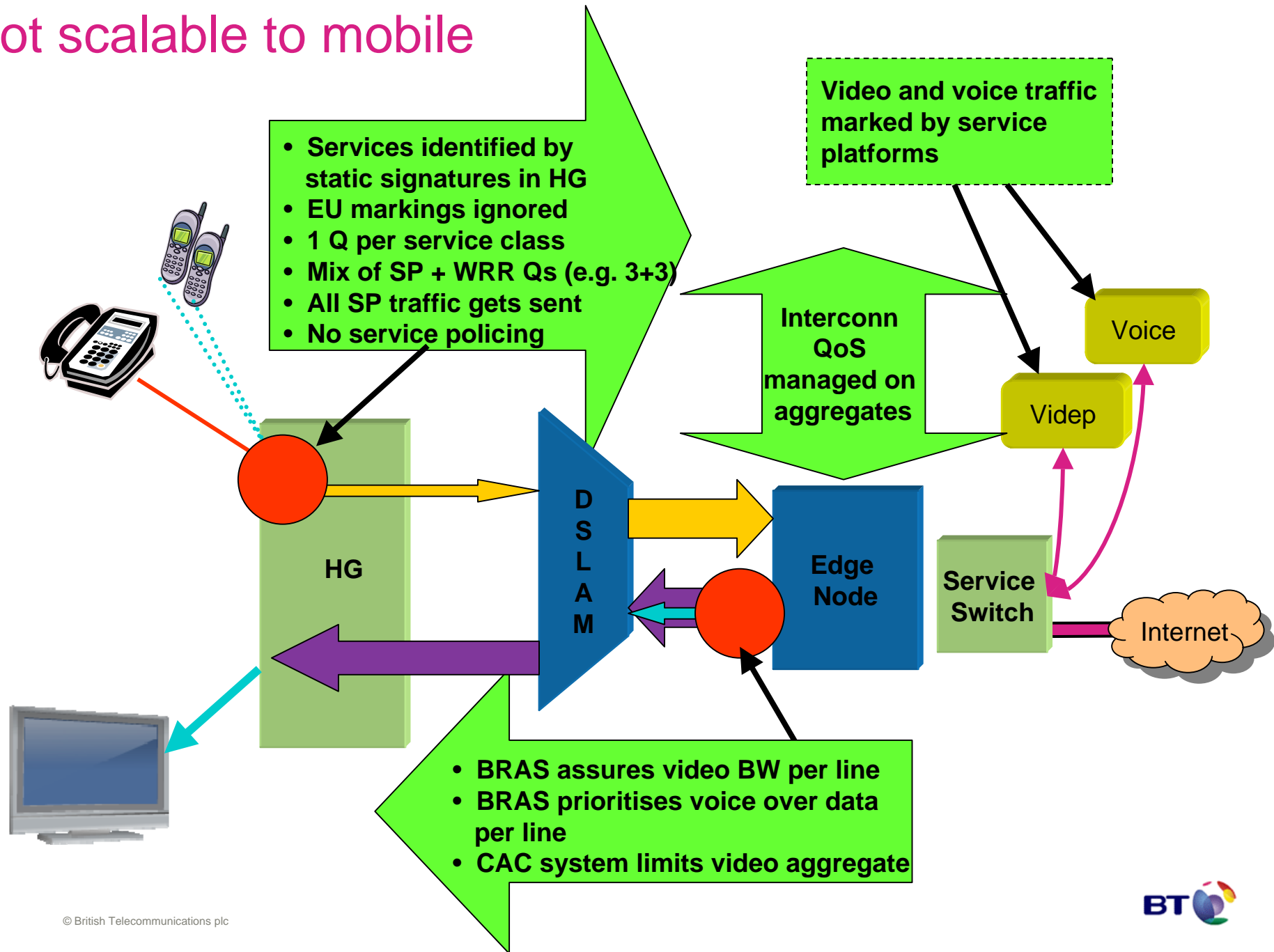
Who benefits from QoS?

- Users –
 - want services
 - don't care how it is done if service “works”
 - Will churn and complain if service fails
 - Won't pay more for QoS specifically
- Service providers
 - Want to sell services
 - Might pay more for QoS
 - Need to be persuaded it makes a difference!
- Network providers
 - Need to move away from connectivity
 - Want to sell network “value-add” – QoS, location, security..
 - Will only invest if there is a good business case

Current solution - practical

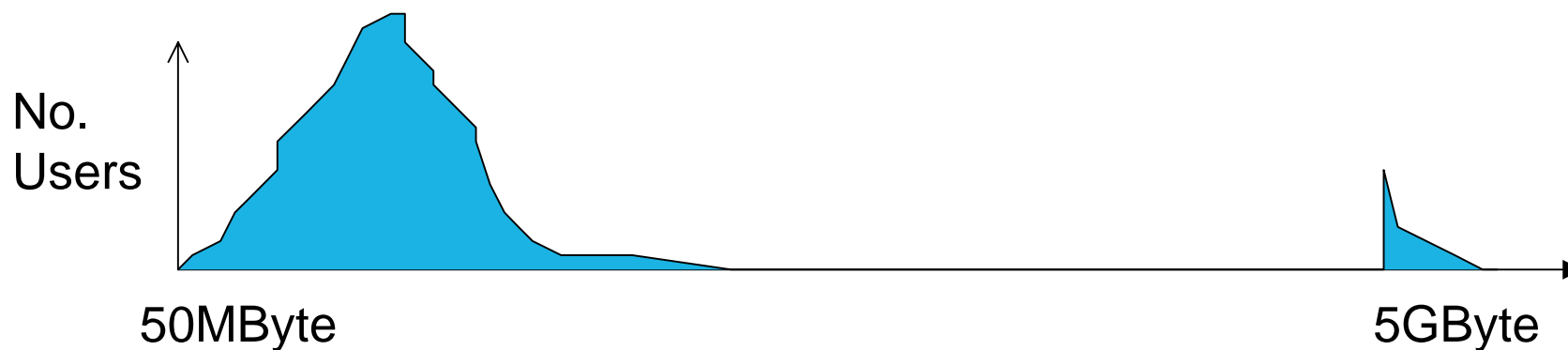


Not scalable to mobile

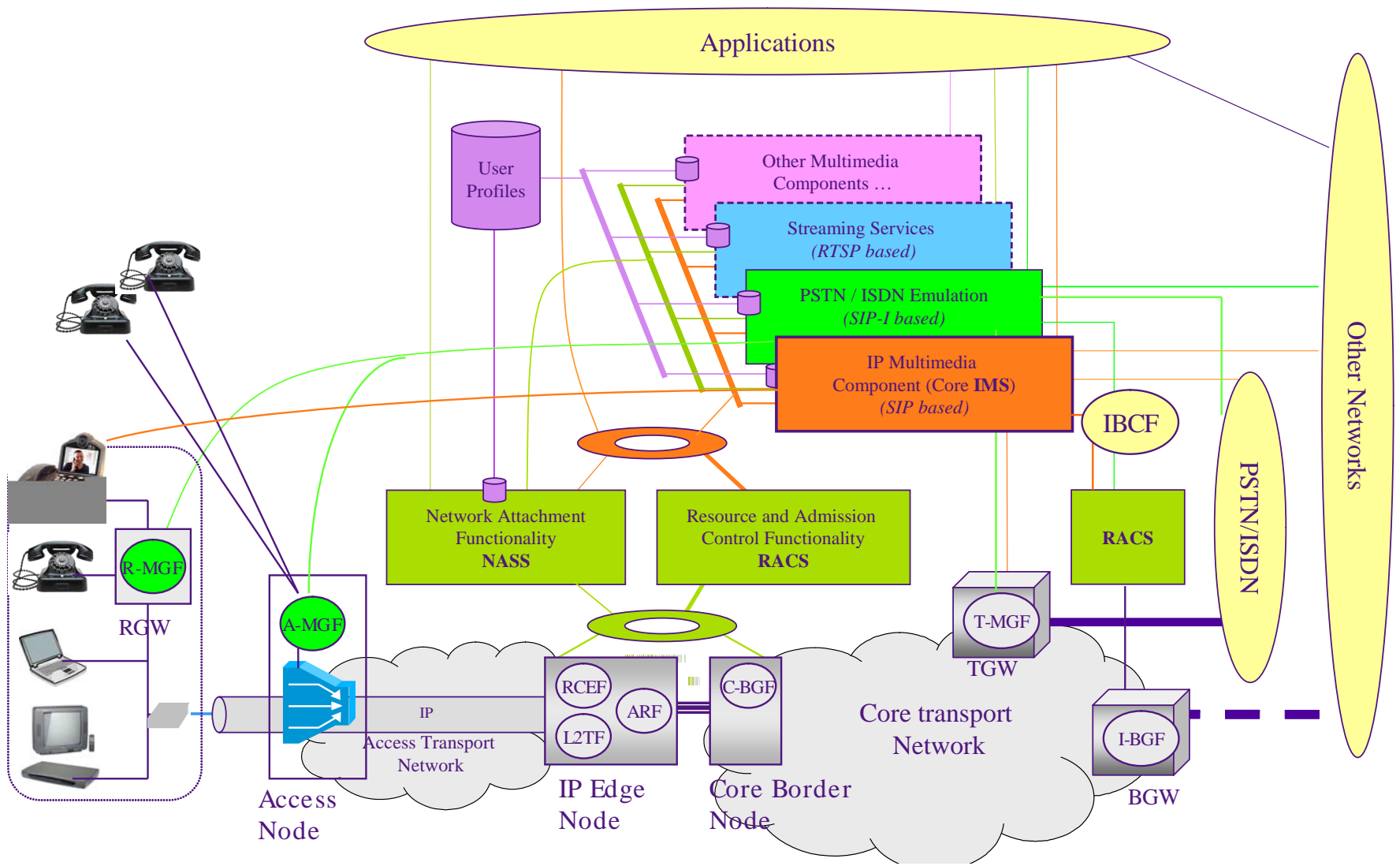


DSL QoS – some observations!

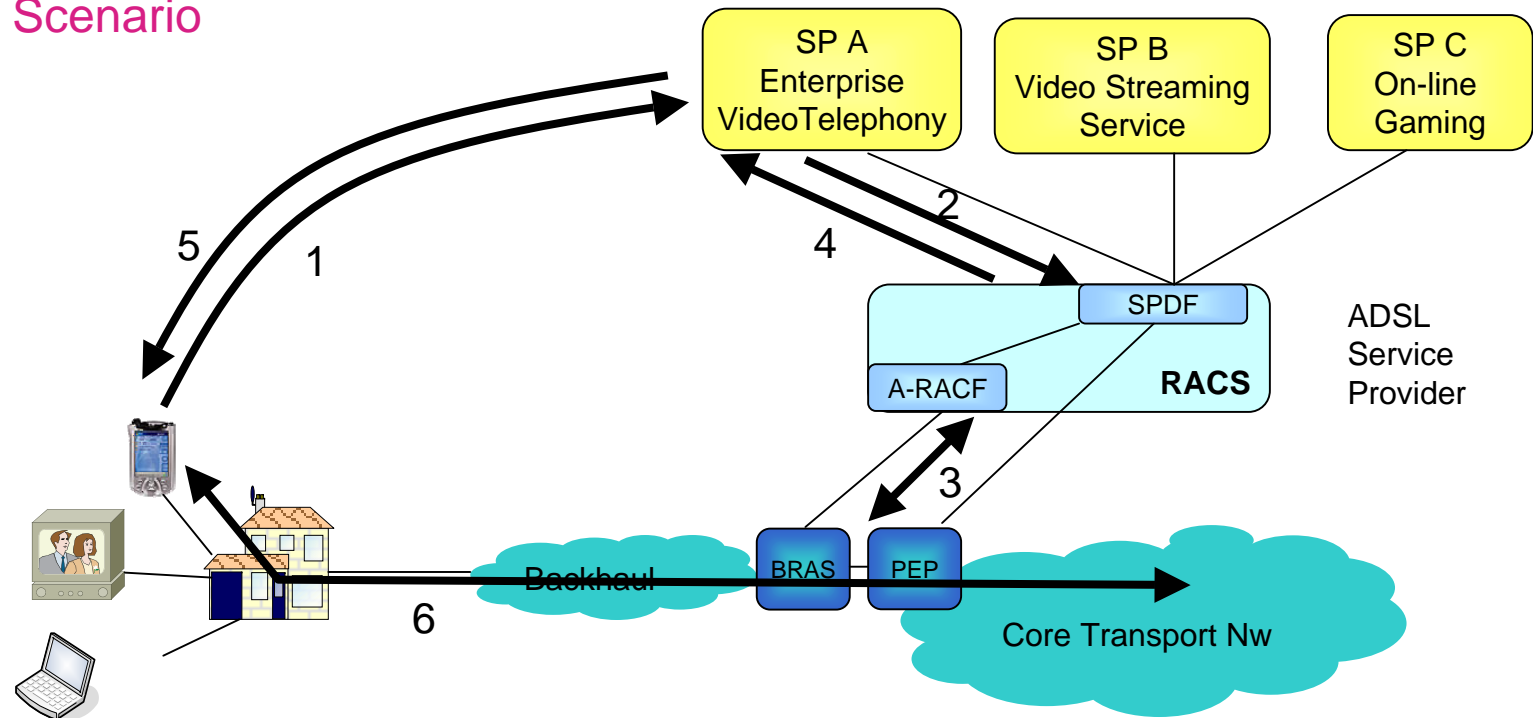
- Bandwidth increases with a Moore's law constant of <12months!
- QoS solutions are only of use for loadings of 70-200% of network capacity
- 3 QoS classes work as well as 6!
- L2 “hard” solutions work well for Enterprises with strict QoS requirements
- “all you can eat” tariffs are not ideal!



Longer term solution - ETSI TISPAN NGN R1



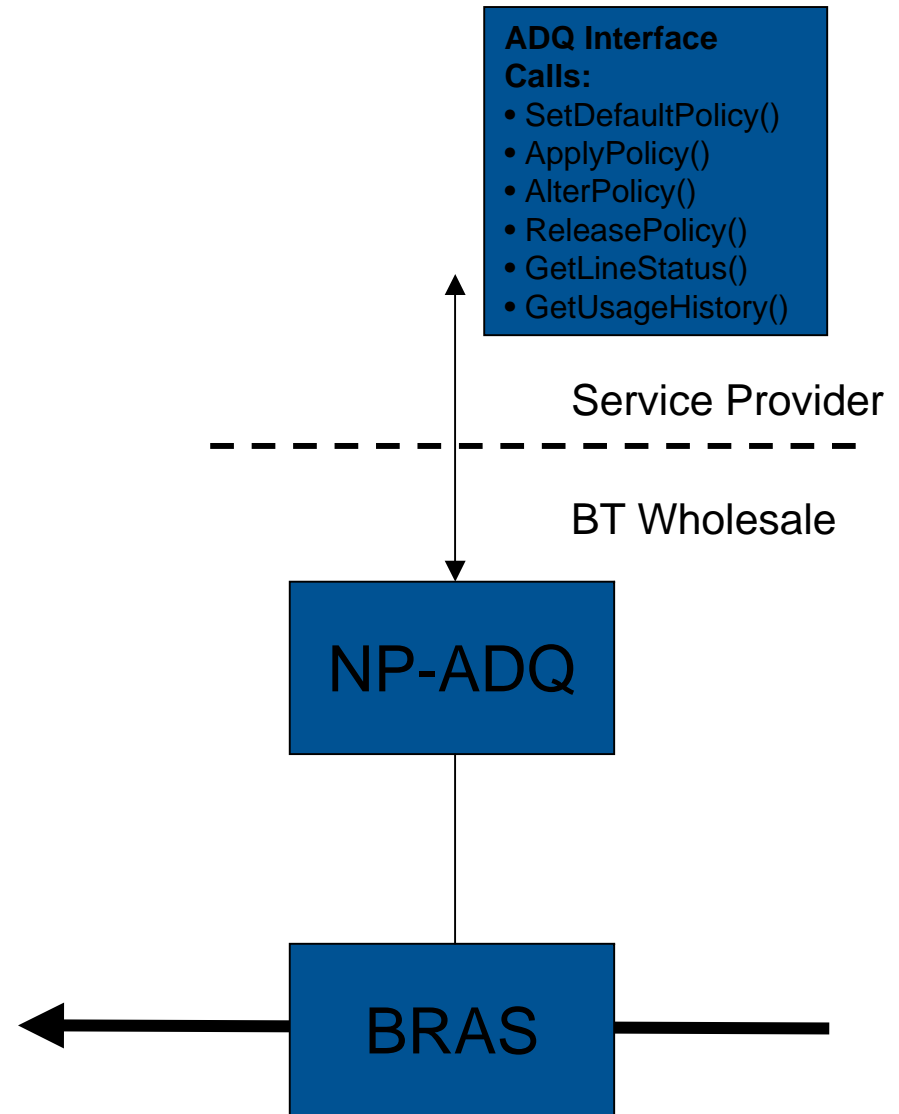
Physical Realisation II: Use Case Scenario



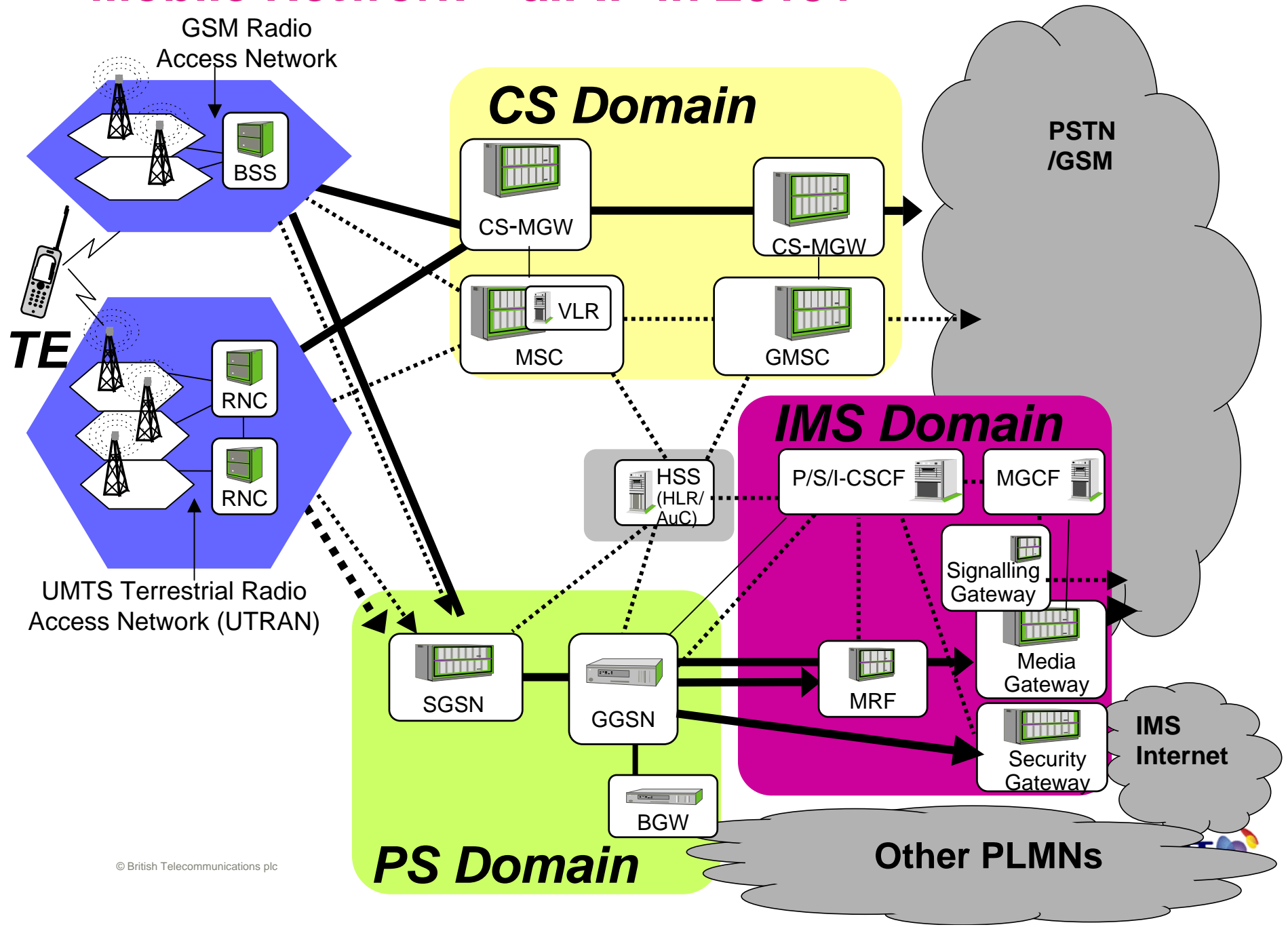
1. Setup videotelephony conference to team
2. Request resources for audio and video flows specifying characteristics
3. Make policy-based and resource availability-based admission decision and enforce corresponding policies in the network
4. RACS sends acknowledgement of successful reservation to Application
5. Application acknowledges successful videotelephony session to user
6. Videotelephony session starts

BT IPStream Advanced Services Trial

- Policy Management on broadband
- Planned trial
 - STIN427 & STIN450*
- End User Speed Control
- Down Stream QoS
- Web Services Interface



Mobile Network – all-IP in 2015?



Convergence today is mostly about WiFi



- Wi-Fi handsets forecast to increase nearly 1300% through to 2010*
- 245.9 million Wi-Fi portable devices globally by 2010**
- 22 million in the UK alone by 2011 *
- Wi-Fi Alliance has already certified over 3000 products
- Over 142,407 free and paid Wi-Fi hotspots in 132 countries
- Over 300 wireless cities deployed

* *Infonetics Research*

** *Wireless Cities, BT Openzone, Wi-Fi Consumer & Business networks*

Voice is still where QoS is most needed



Skype on "3"

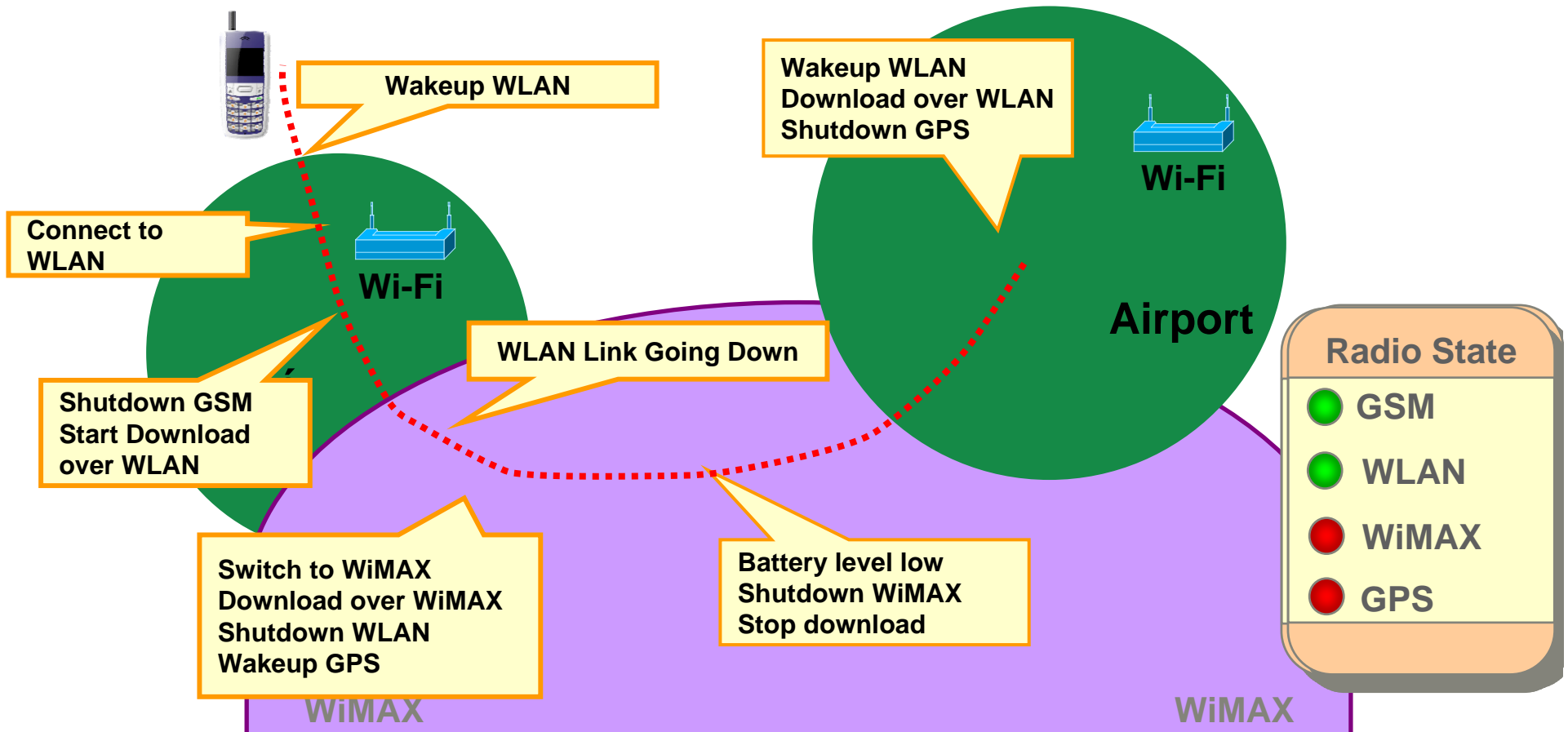


BT Total Broadband Home environment



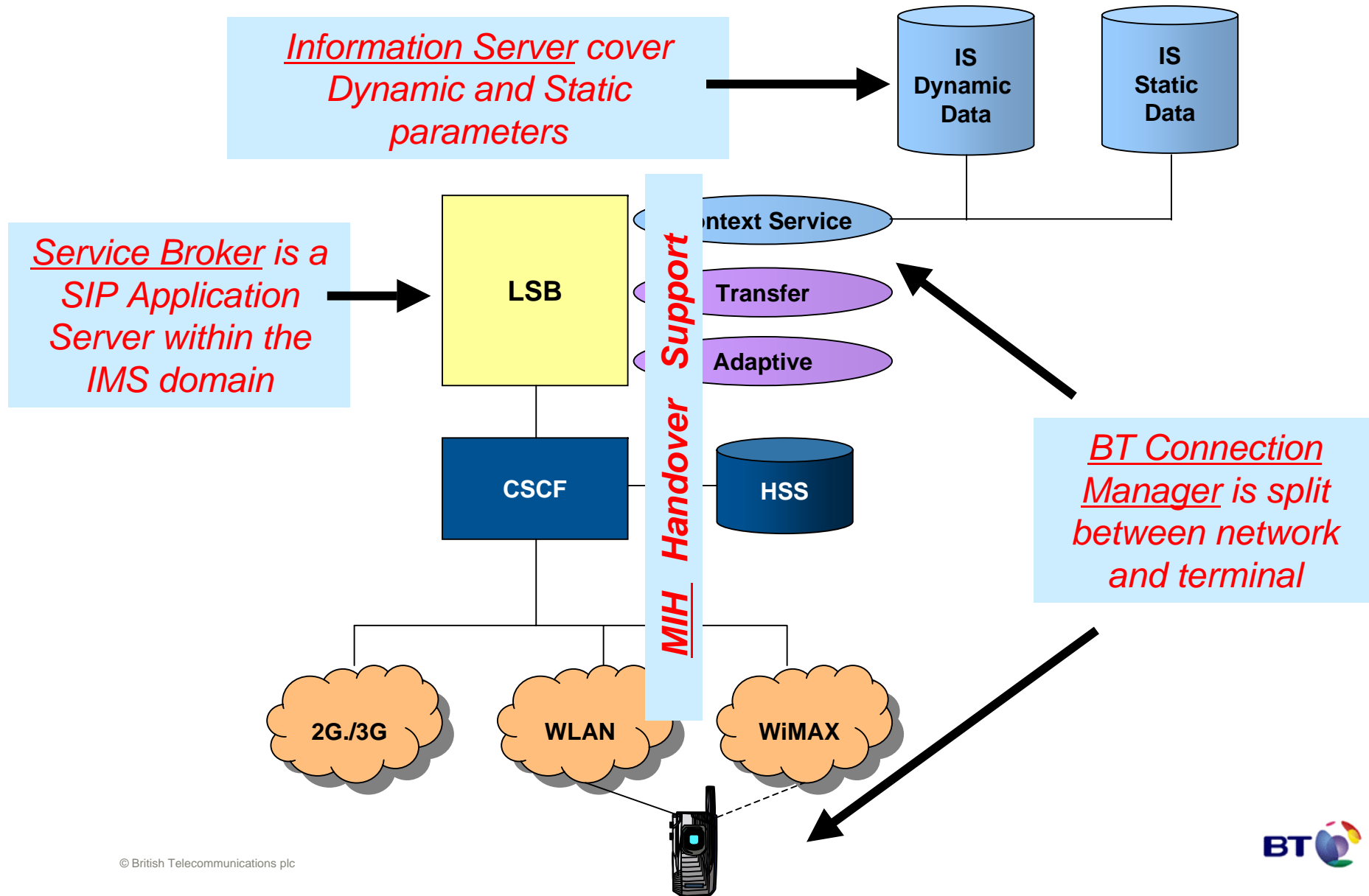
BT Fusion
(Consumer and Enterprise versions)

What is Media Independent Handover aka 802.21



Network Type	SSID/ Cell ID	BSSID	Operator	Security	NW	Channel	QoS	Physical Layer	Data Rate
GSM	13989	N/A	AT&T	NA	NA	1900	N/A	N/A	9.6 kbps
802.11b	Airport	00:00:...	Alrport	.11i	EAP-PEAP	6	.11e	OFDM	11 Mbps

21C Mobility Architecture Testbed



Conclusions

- QoS is an essential part of delivering at least video and voice services
- Today's solution is a hotchpotch
 - DSL edge solutions
 - Over provision
- Wireless – circuits/special treatment for voice
- In the long term ETSI TiSPAN provides a complete architectural solution which harmonises with mobile IMS solution
- Research into dynamic network selection, handover and adaptation will reduce QoS requirements
- AGAVE/EMANICS work of great interest to BT
 - Trilogy project
 - ECN work



Thank you – any questions?