



Grid Computing @ BT

“The evolution toward assured grid services”

GGF12

Brussels

Nigel K J Dye September 21st 2004



Forward-looking statements - caution advised

- Certain statements in this presentation are forward-looking and are made in reliance on the safe harbour provisions of the US Private Securities Litigation Reform Act of 1995. These statements include, without limitation, those concerning: transformation of BT's networks and cost base; benefits to customers of the ICT programme.
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Agenda

Introduction - BT Who are we ?

Why Grid ? - BT ICT strategy

What ? Evolution of BT Grid Services

Summary

About us : BT GROUP

BT Group is one of Europe's leading providers of telecommunications services. Its principal activities include local, national and international telecommunications services, higher-value broadband and internet products and services, and IT solutions.

In the UK, BT serves over 20 million business and residential customers with more than 29 million exchange lines, as well as providing network services to other licensed operators.

BT's strategy is to create value for shareholders through being the best provider of communications services and solutions for everybody in the UK, and for corporate customers in Europe, achieving global reach through partnership.

Our aim is to increase profitable revenues from data and advanced broadband and internet services and to reduce further our dependence on revenues and profit generated by fixed-line voice services.

About us : BT GROUP

BT Retail is the UK's largest communications service provider, by market share, to the residential and business markets. It supplies a wide range of communication products and services, including voice, data, internet and multimedia services, and offers a comprehensive range of managed and packaged communications solutions.

BT Wholesale provides network services and solutions within the UK, including ADSL, conveyance, transit and bulk delivery of products. It serves more than 500 communication companies, including other BT businesses. It aims to build complete communications packages and works with its customers to help them succeed in their businesses.

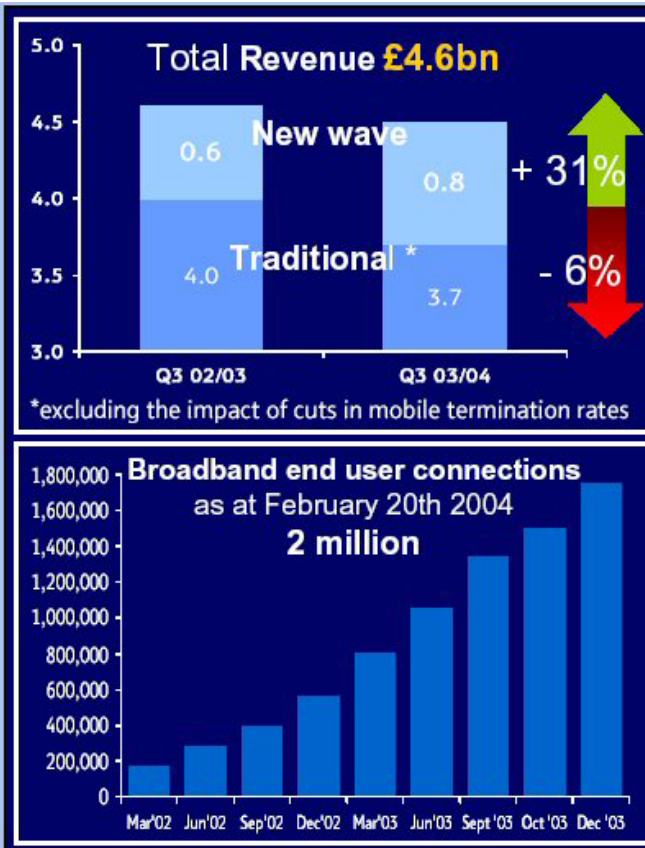
BT Global Services is BT's managed services and solutions provider, serving multi-site organisations. Its core target market is the top 10,000 global multi-site organisations with European operations. It provides global reach and a complete range of ICT solutions and services.

BT Group Financial strength & stability

Q3 ended December '03

- New wave turnover up **31%**
- EPS up **7%** on Q3 last year
- Profit before tax* **£526m** up 1% on prior year
- Net debt **£8.8bn** 32% lower than prior year
- Free cash flow **year to date £1.1bn** up 46% on last year

* Before goodwill amortisation and exceptional items



- Continuing revenue and profit growth
- Cash generating businesses
- Strong balance sheet
- Top FTSE 100 status
- Analyst confidence –
“BT remains one of the most Attractive European operators” (Nomura)

SOURCE:

<http://www.btplc.com/Siteservices/Servicesforinvestorsandanalysts/Investorfactsheet/Investorfactsheet.htm>

BT's strategy is on track

Traditional focus

- Improved service
- Aggressive & creative marketing
- Price innovation
- Reduce costs



Long-term partnership
with our customers

New wave focus

- Broadband
- Mobility
- ICT
- Global Solutions



21CN
transformation

Complete range of global services

- End-to-end delivery of managed networks, IT applications, integration and outsourcing
- Leading edge capabilities, including
 - IP-Virtual Private Networks
 - Multi Protocol Label Switching (MPLS)
 - Mobile data networks
 - GigaByte Ethernet
 - Web Services
- Global network breadth and depth
 - Network coverage in 120 countries
 - Europe's most extensive IP network, connecting over 250 cities
 - Service and network management centres in major cities around the world





GRID Why ?

People's needs continue to change



Businesses need to adapt



More for less



Connected world



Consolidation
& restructuring



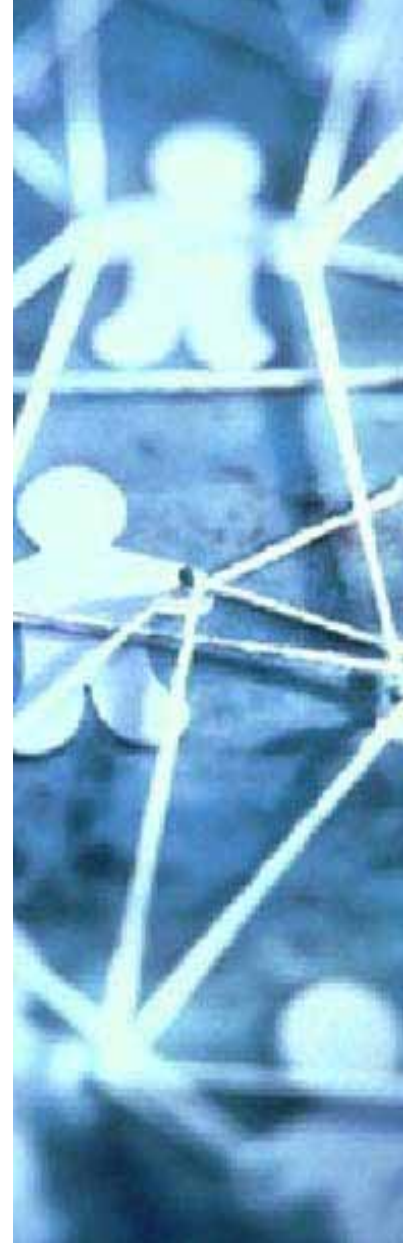
Globalisation

BT's ICT Vision :

"To lead the world in network-centric ICT solutions"

- BT's ambition is to become a world leader in the digital networked economy
- BT has a unique blend of skills and global IT infrastructure
- BT's excellent growth and recent wins shows its strengths of propositions
- BT has made good progress in its ICT growth and has had significant recent wins.
- Partnerships bring new capabilities and routes to market to accelerate BT's growth in ICT
- Partnership between a world class Communications company and a leading global IT company is a good fit to BT's strategy

Simple and Complete



Technology is enabling business change

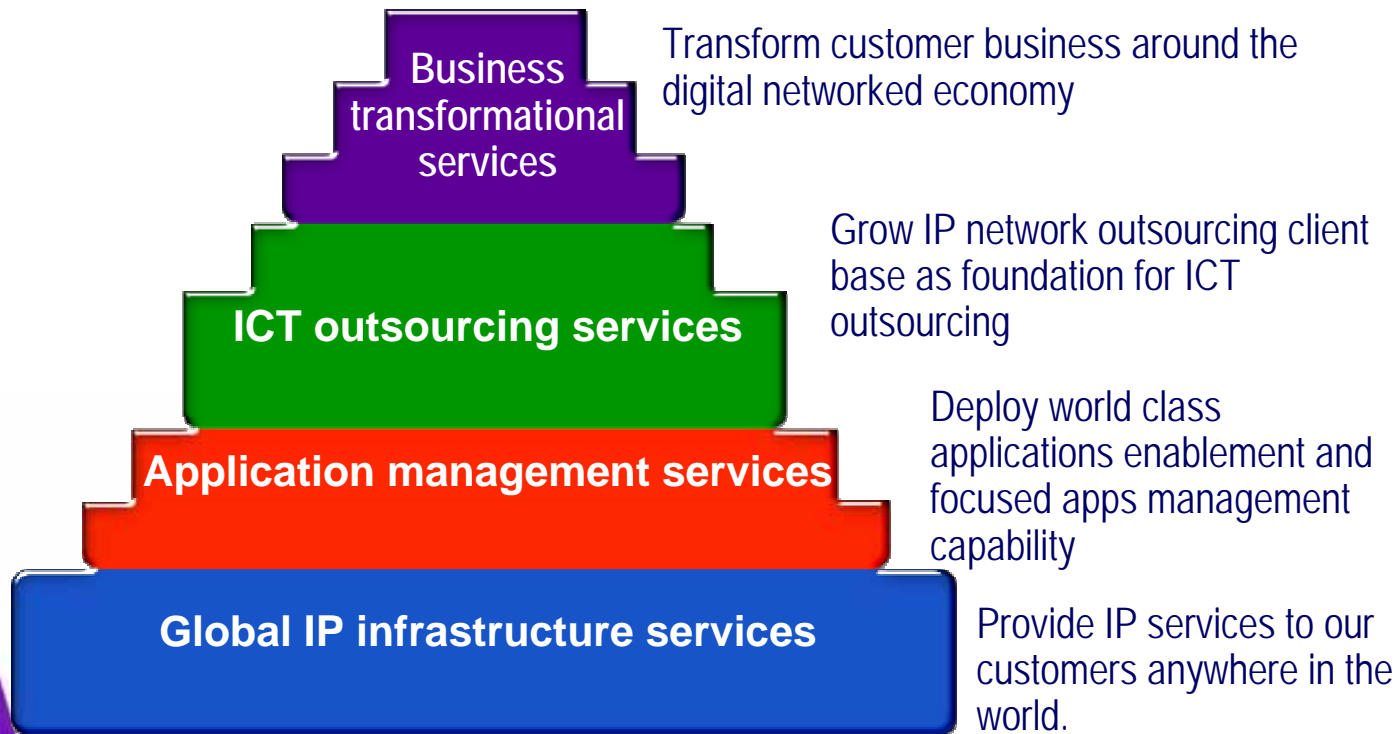
- Business communication needs are increasingly driving integrated communications and IT
- Companies that seize the opportunity can
 - Improve the effectiveness of human interaction and collaboration
 - Reconfigure processes to use global resources more efficiently
 - Use BusinessIP based technologies to increase the flexibility of their operations
- BT Group companies provide
 - Control to reduce costs today
 - Flexibility to take advantage of tomorrow's growth opportunities
 - Certainty, continuity and confidence

Delivering the promise of integrated communications and IT : ICT



BT's ICT Strategic Focus

BT's ICT Customer Proposition operates at 4 levels



...we are very clear about what we will do,
and what we won't do!





Our Approach as a Telco

GRID - natural step in IT evolution

1) Mainframe 5) Virtual Mainframe

Slow networks
Disc and Tape
For data transfer

Intelligence back to the
Core configurator (broker or trader)

Dumb terminals
intelligence in the core

Compute resource virtualisation possible

Under utilisation increases user costs
and lack of application flexibility
drives use of PCs

CIO more comfortable with outsourcing
and looking for more savings

Faster and cheaper networks enable
increased use of network accessed services

2) Standalone PCs

The Computing Roundabout..

4) Utility Computing ASP's Web-services

Slow networks
Disc and Tape
For data transfer

Increases in speed and
Capacity drives demands for
Faster networks

New and faster networks
With internet joining it
together

Faster networks enable increased use
Of network accessed services

Outsourcing grows as CIO
Strive for increased efficiency

Dumb network – intelligence at the edge

Networks and PCs get
Bigger and faster

3) Networked PCs

The evolution of Networks towards Grid Services

Leased
Lines

Router
Firewall

VPN

Pre-Grid

Grid

In the Enterprise market it is very complex :

- standards for interconnect ?
- security ?
- 'metering' / billing ?
- Quality of Service ?

Enterprise Virtual Computing needs a Virtual Fabric

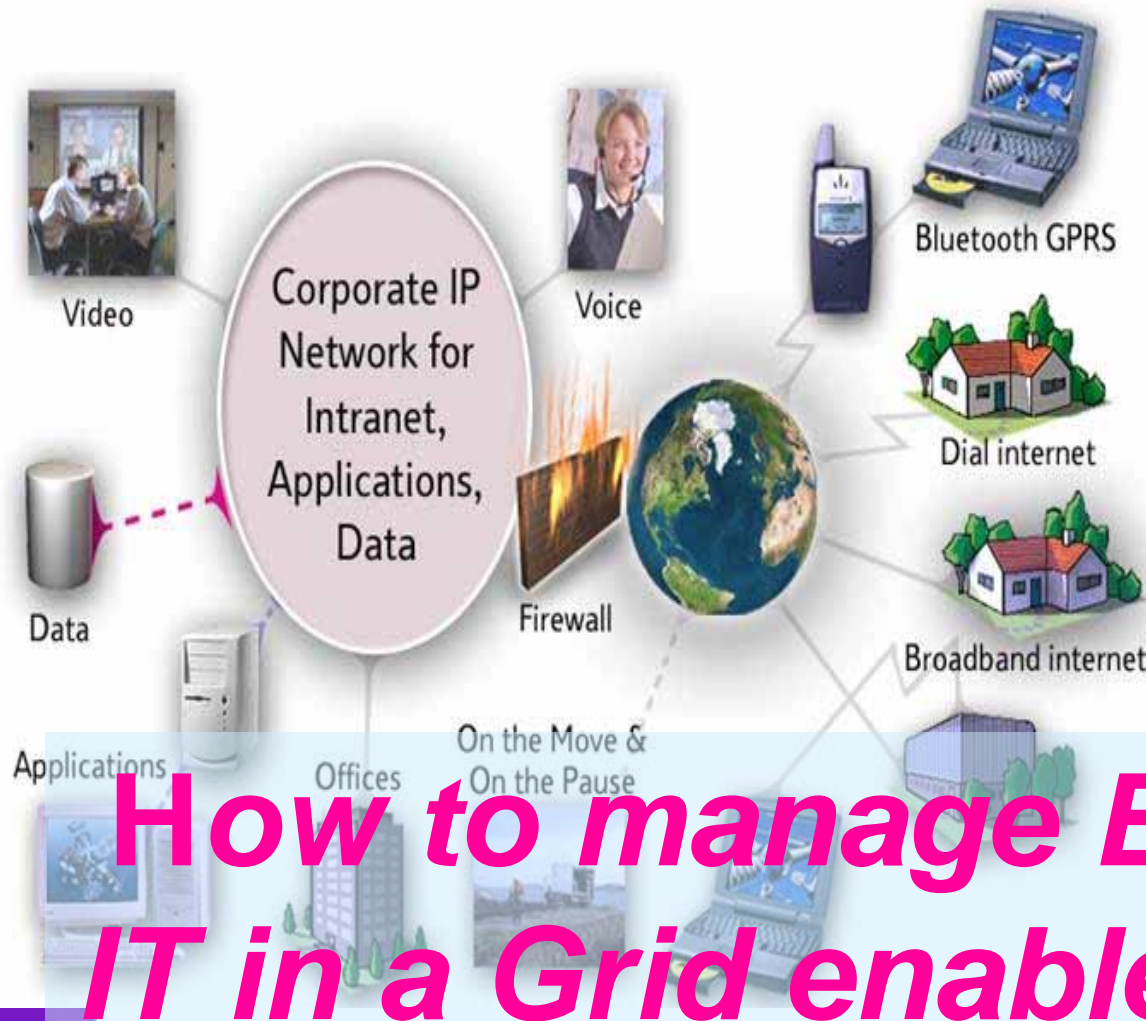
The Customer Dilemma

- Survey of 250 IT professionals:
- 83% Do not know what applications are running on their networks
- 82% Do not know how much traffic is non-Business related
- 84% Are under pressure to maximise resources and contain costs
- 76% Continue to upgrade bandwidth

In 2003, the Top 2000 European Businesses wasted 3 million+ hours as a consequence of poor application performance



GRID challenges for CIO's



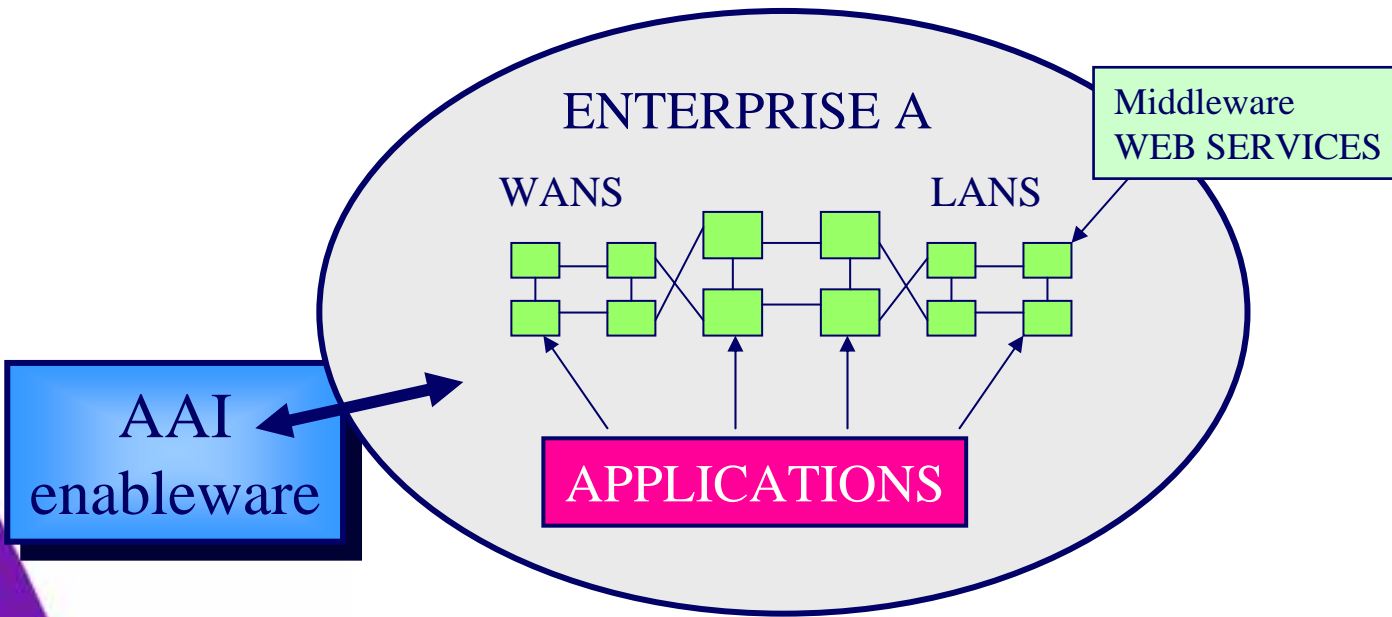
- Management control and Accountability
- Asset utilisation, more for less
- Enabling your teams to work together
- Resources aligned with flexible business objectives
- Enable ICT infrastructure to work with Business Partners
- On demand
- Security

GRID - Prologue

- From a BT perspective GRID is **NOT** about:
 - The relatively few applications that require massive parallel processing
 - A business model *primarily* predicated upon reductions in licence fees
 - Computing resources *per se*
 - Simple improvements in processing efficiency through use of under-used computing cycles
 - Primarily focused on provision of Network bandwidth
- What it **IS** about is:
 - The creation of a “Virtualisation” business model across the entire “Information Communication Technology” resource profile



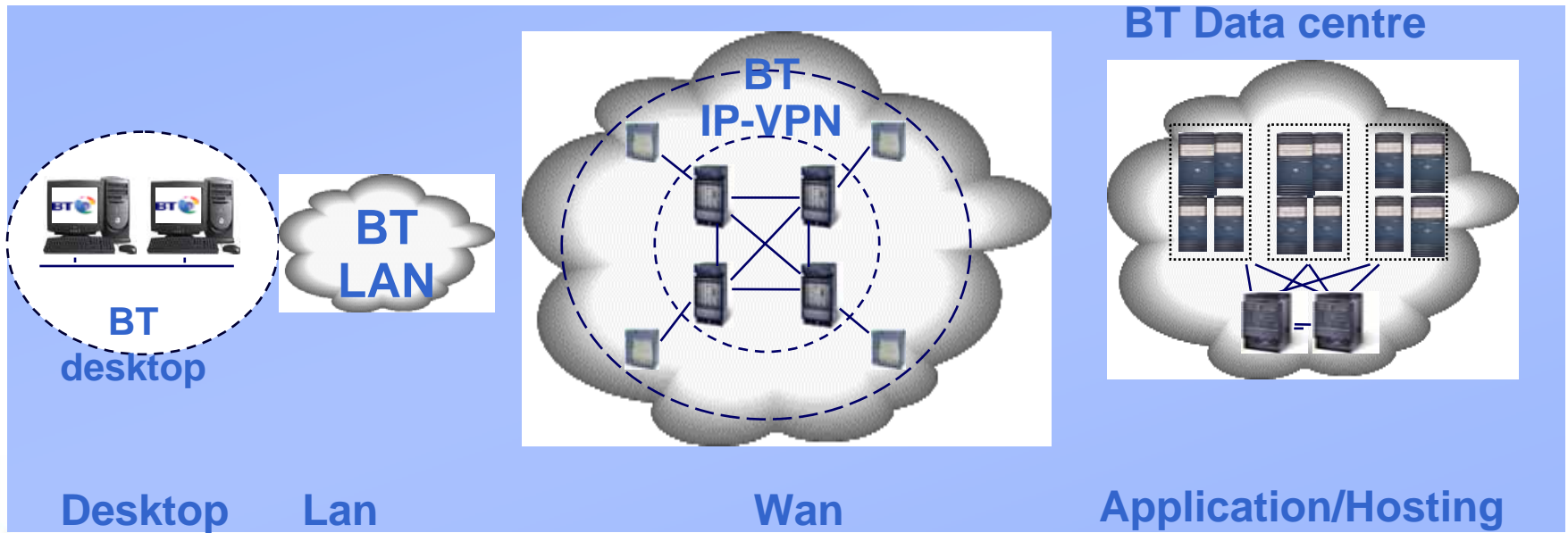
Evolving towards GRID – Today



- Applications closely associated with IT resources they run on
- IT resources are primarily within Enterprise boundary
- CIO manages complexity and Application performance
- Addition of AAI provides significant benefits to Enterprise CIO



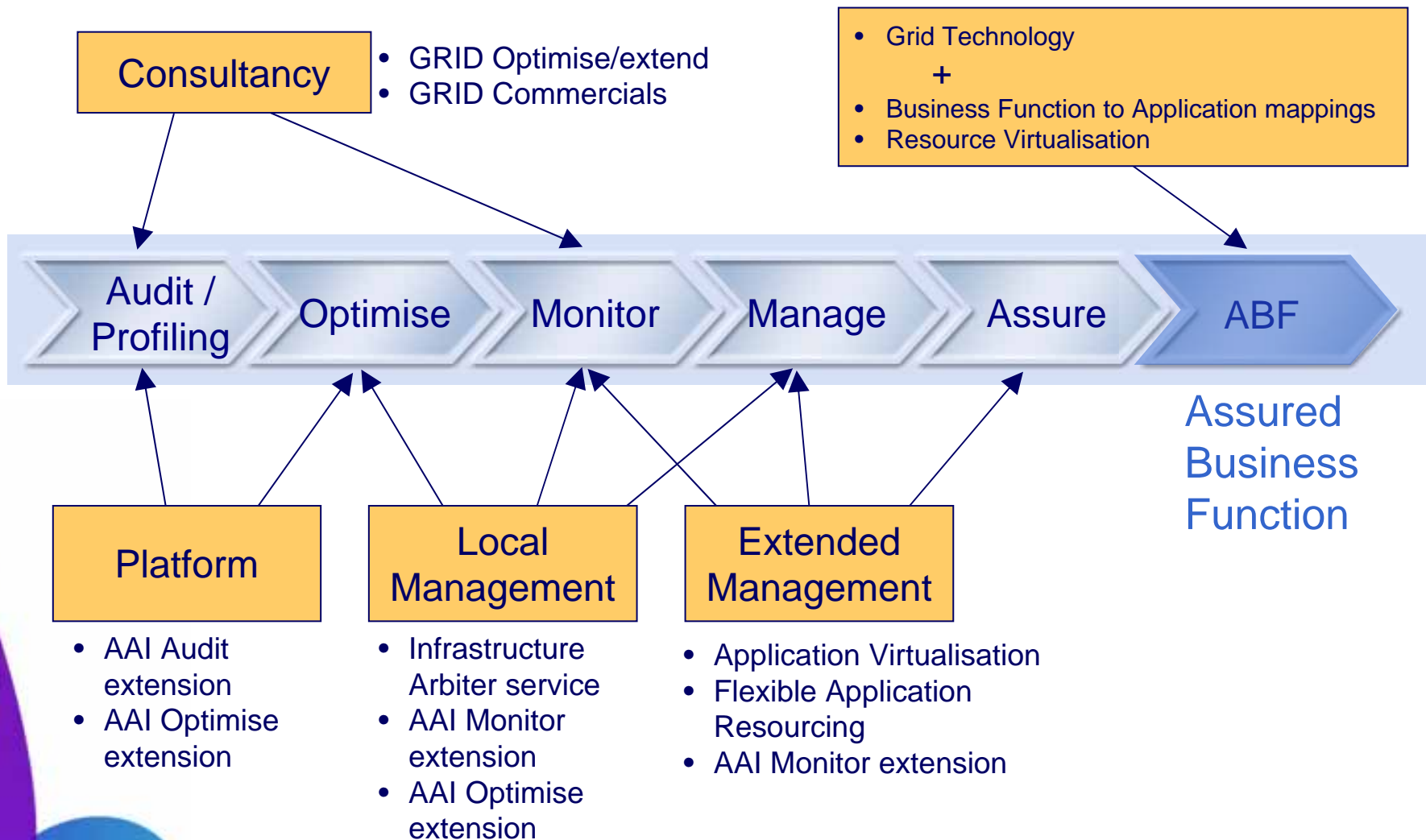
Delivering “Assured” Applications AAI



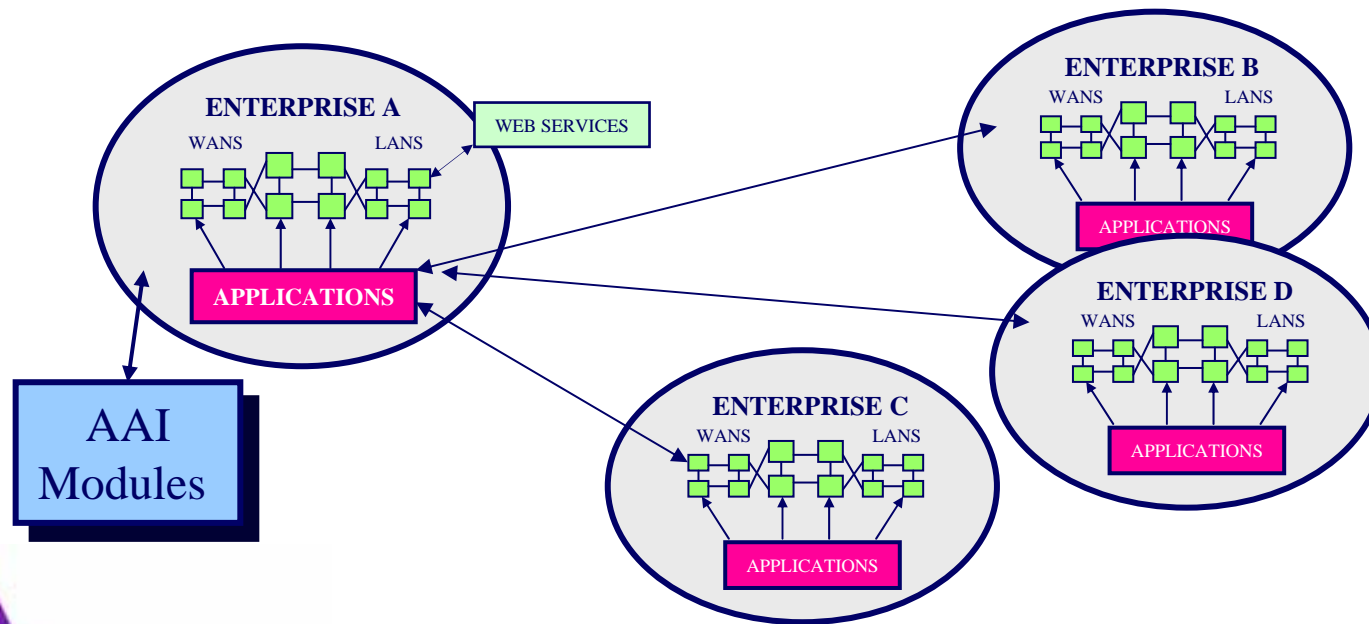
- Assuring:
- -HW , SW, LAN, WAN, DATACENTRE, APPLICATION, SUPPORT
- -Oracle, Siebel, PeopleSoft, SAP
- -24/7, worldwide, pay as you go
- One stop shopping

Grid Options for AAI

(Grid release 1.0)



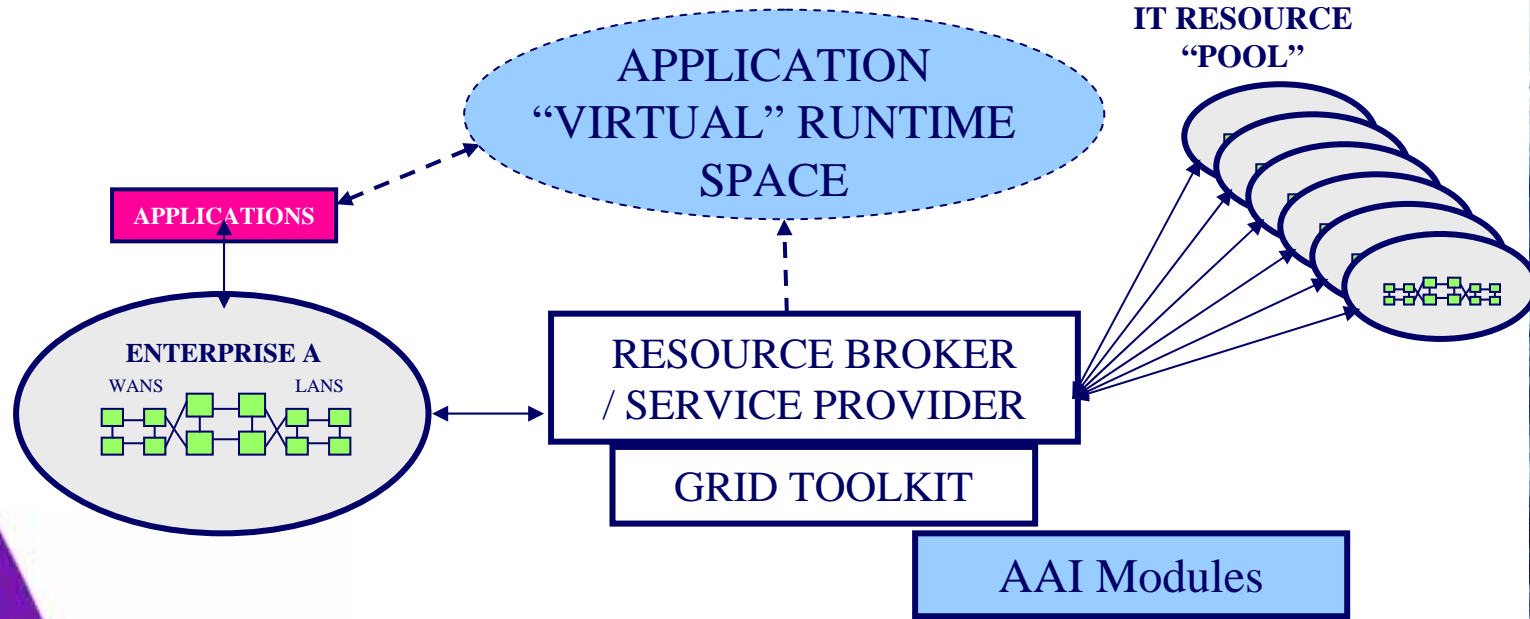
Evolving towards GRID – Utility Computing



- Applications link loosely with IT resources they run on
- IT resources are extended beyond Enterprise boundary as and when required by Utility Computing provider
- CIO manages complexity and Application performance
- AAI still provides significant benefits to Enterprise CIO



Evolving towards GRID – True GRID Computing



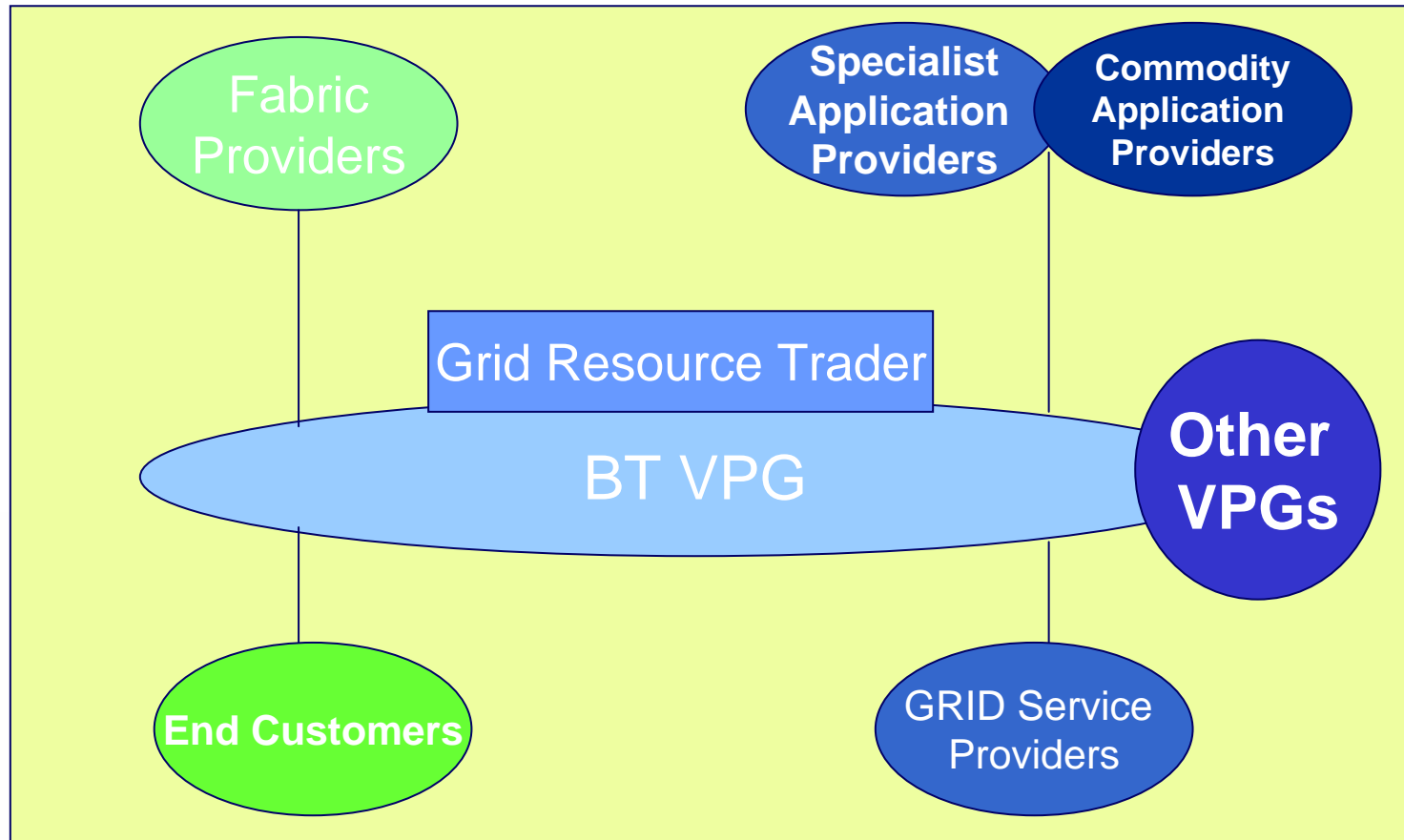
- Majority of IT resources become virtual to Enterprise customer
- Applications run in Virtual Space independent of IT resources they run on – CIO role becomes negotiator with Resource Broker
- Resource Broker/Service Provider manages complexity and Application performance as prime user of AAI across IT "pool"

GRID - from a Telco perspective

For a Telco it is about:

- Much more than providing a high speed network (bus).
- The creation of a “Virtualisation” business model across the entire ICT resource profile.
- Telco strengths in the management of distributed resources can be used to position ourselves as a natural GRID business.
- *We have virtualised your network – let us virtualise the rest of your compute resources*
- *The ultimate service provider*

Visionary GRID Market Place



Adding the GRT to the VPG enables us to create a market in GRID services.
Moving customers from fixed contracts on to a PAYG type model.
Market dynamics (availability, quality, demand, volume ..etc) determine price.
Creating a dynamic and volatile mix of suppliers and consumers.

Where is the catch...

- All existing GRIDs are inside firewalls (intra-grid) where security is less of a problem.
- There are no industrial strength accounting and billing services developed.
- There are no security services available today to facilitate extra/inter-grid
- We are not yet an obvious supplier ...we are not big in Lans and Wans ...and we need a strong ICT position to be a credible GRID operator.....
- GRID is international Standards will be a big issue.
- Intra-Grid middleware is available as freeware.
- Its unclear how far and how quickly customer will risk going with virtualisation.
- Business models still to be developed
 - Seen by some as “Internet2” And that’s free isn’t it.
- Consequential damages are a big concern.

The Implications of GRID in the market

- IT service providers will need a GRID for Credibility
 - The market awareness of GRID computing has been raised through advertising and customer interactions
 - European governments embracing GRID technologies
- Market awareness is creating customer expectations
 - GRID is seen as enabling a step change in business efficiency and cost savings.
- Web services and Grid are merging
 - Web services, providing distributed application functionality with Grid managing the processing, storage and data resources



Why BT :-

- Already Leaders in IPVPN.
- Long history in providing network centric services.
- Trusted and Secure.
- Reliable, Resilient, Responsive.
- Wholesale experience
- Fabric and service supplier agnostic.
- Long term future.....

summary

- BT is a global player in the ICT services market
- BT sees Grid as virtual business model across the entire ICT portfolio
- BT takes Grid seriously and has a coherent, strategy and roadmap to unlock Grid benefits
 - The transformation of our existing ICT / AAI offerings into Grid services
- BT reduces complexity and is working actively to assist our customers to use Grid Services
 - Protect their existing investments
 - A Migration to Grid enabled services

Thank You for your time today

Lets Talk

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