PCTY2011

Pulse Comes to You

Optimising the World's Infrastructure

Infrastructure and Application Performance Architecture at BT

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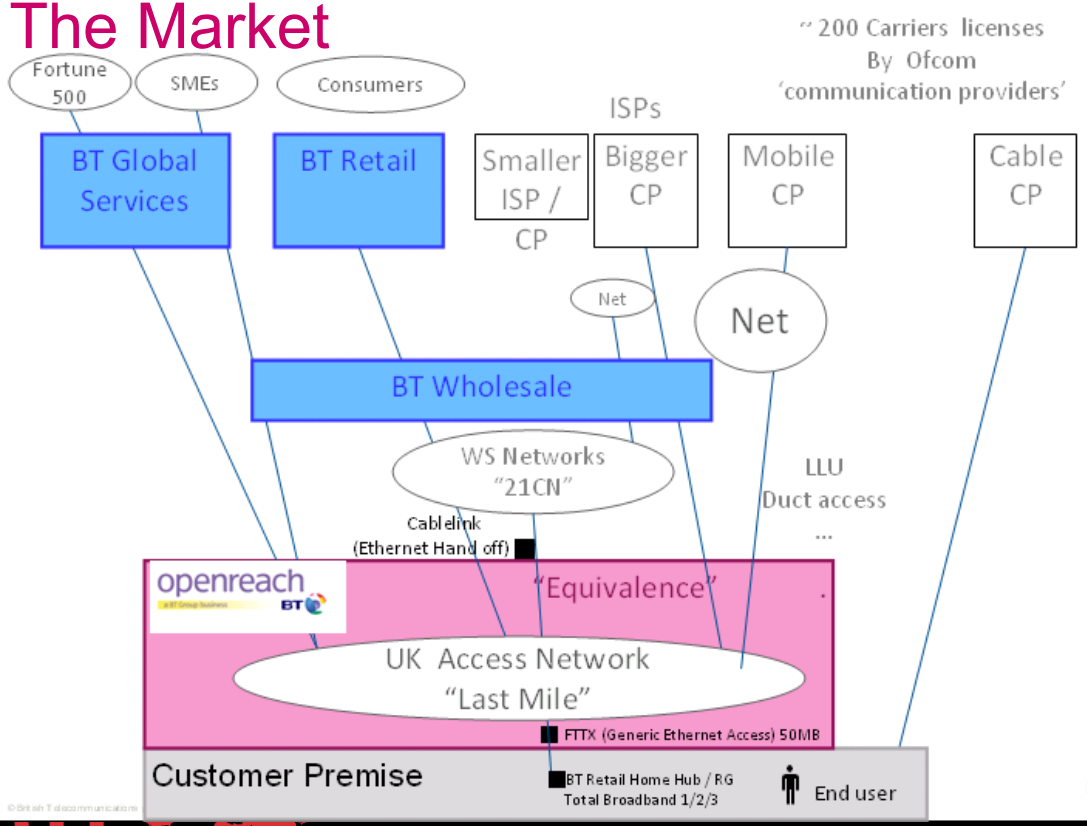
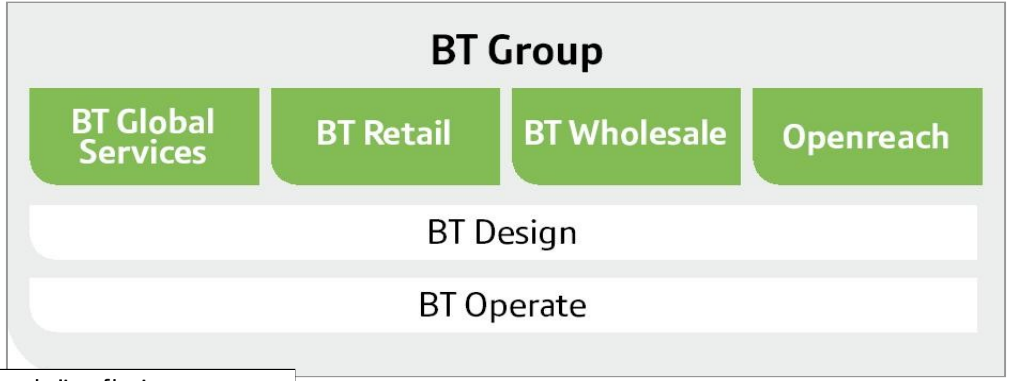
Chief Architect – Network Performance Reporting
BT Innovate and Design

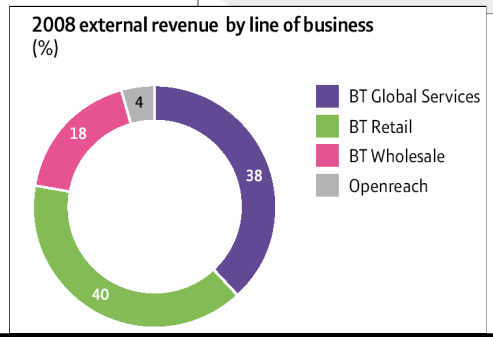
Agenda

- BT (organisation & architecture)
- BT Infrastructure
- BT Applications and TNPM/Proviso
  - Overview of Deployments

About BT – The Market

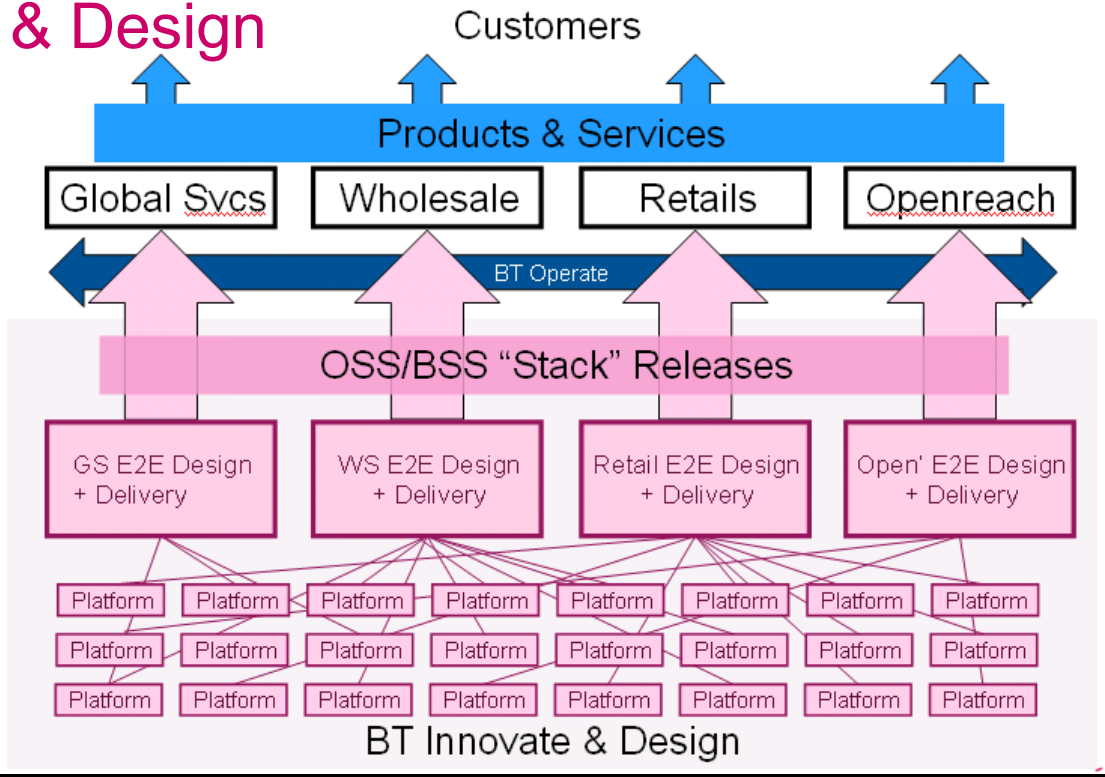






- Lines of Business " 6 **LoBs**"
- Market Facing Units "4 **MFUs**"

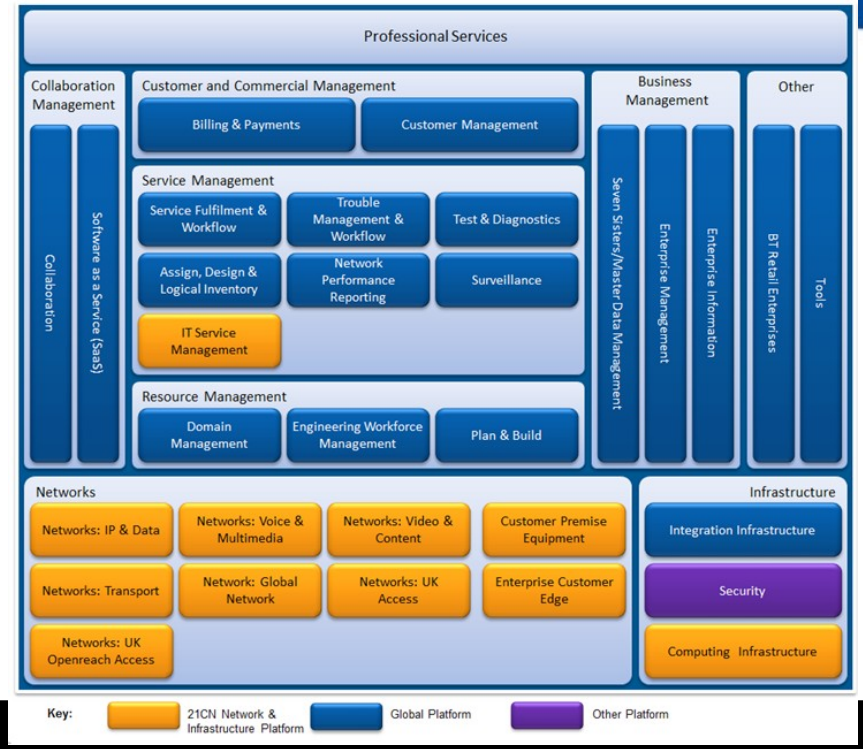
BT Innovate & Design



BT Innovate & Design – Platform Architecture

Platforms Contain

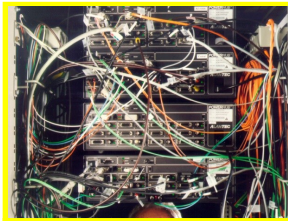
- All relevant systems
- All “experts”
- Communicate using SOA + EDM

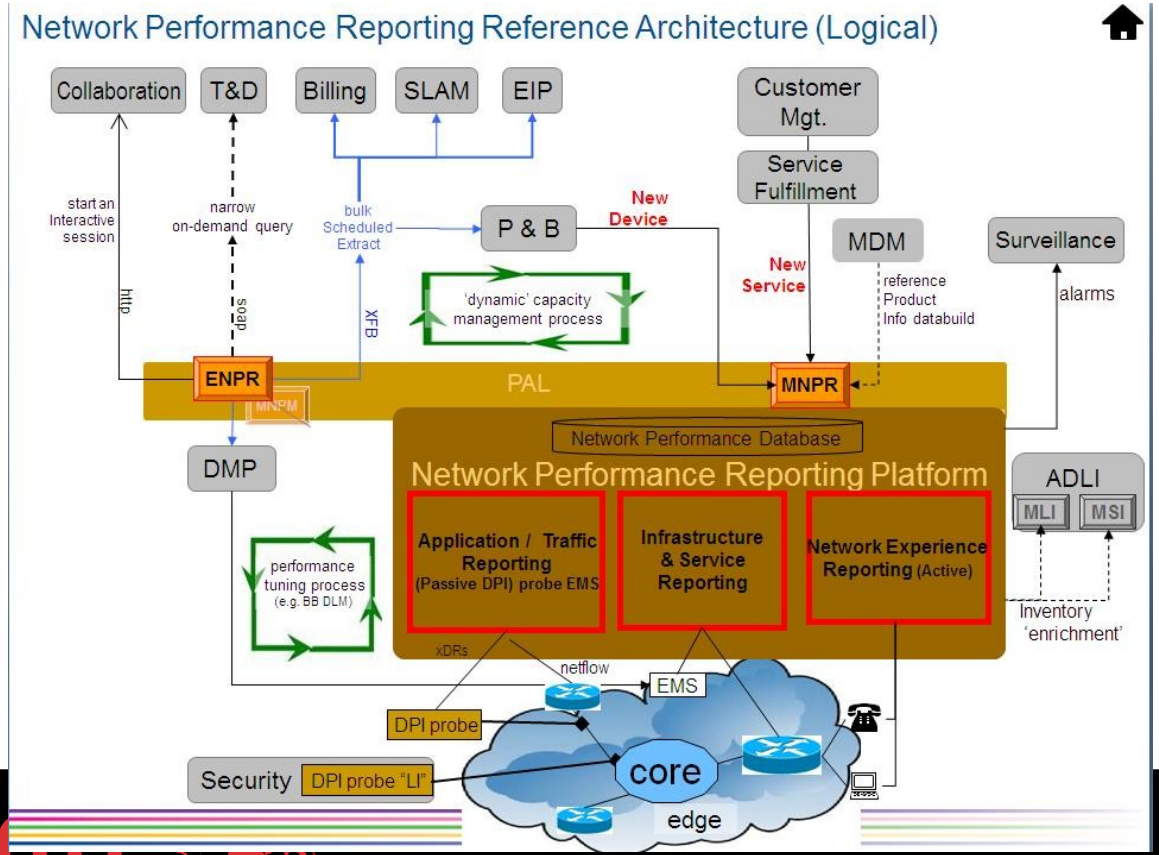


Physical Infrastructure

4 Million poles
~ 25,000 p.a.
120M KM of copper

Every day 25,000 engineers visit 11,000 homes and offices and climb the height of Everest up telegraph poles !




Network Performance Reporting Reference Architecture (Logical)
Collaboration
T&D
Billing
SLAM
EIP
Customer Mgt.
Service Fulfillment
start an Interactive session
narrow on-demand query
bulk Scheduled Extract
P & B
New Device
New Service
MDM
Surveillance
reference Product Info databuild
alarms
http
soap
XFB
'dynamic' capacity management process
ENPR
MNPM
PAL
MNPR
Network Performance Database
Network Performance Reporting Platform
DMP
ADLI
MLI
MSI
Application / Traffic Reporting (Passive DPI) probe EMS
Infrastructure & Service Reporting
Network Experience Reporting (Active)
performance tuning process (e.g. BB DLM)
Inventory 'enrichment'
xDRs
netflow
EMS
DPI probe
core
edge
Security
DPI probe "LI"

Architecture Implementation Strategy….

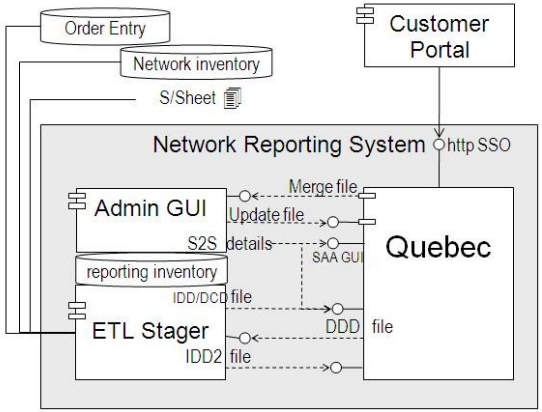
NPR Platform owns ~ 100 PM systems which go back 15+ years these are a mix of in-house, open source and COTS

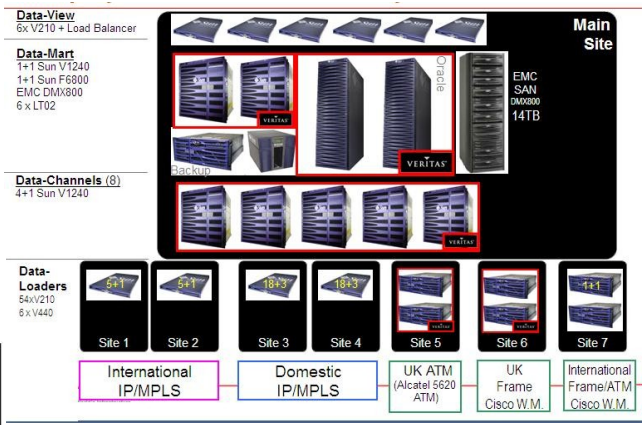
Current BT Strategy for Network Infrastructure Reporting is to use to IBM Tivoli Netcool Performance Manager as the 'rule of one'

- Aging systems are migrated to TNPM as part of 'system rationalisation' roadmaps, sometimes a small legacy SNMP system can be hosted o a much larger Proviso, other times a large migration project is needed (eg to avoid maintenance or upgrade charges from another COTS vendor).
- New business needs (NGA/FTTC) are delivered using TNPnM
-
-

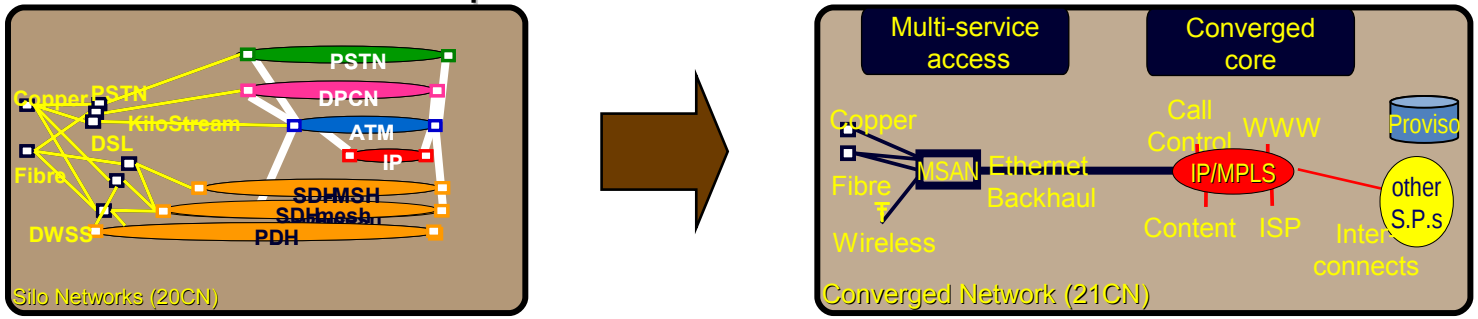
#1.“Quebec”Application=GS MPLS, UK Frame/ATM

- Go-Live April 2004
- ‘bolt-on’ to legacy OSS stacks using an ETL to collate inventory from relevant systems
- Apx 1.4M resources
- 90 day RAW
- Inventory provides device and interface, filtered discovery used for COS (apx 0.5M cos ques)



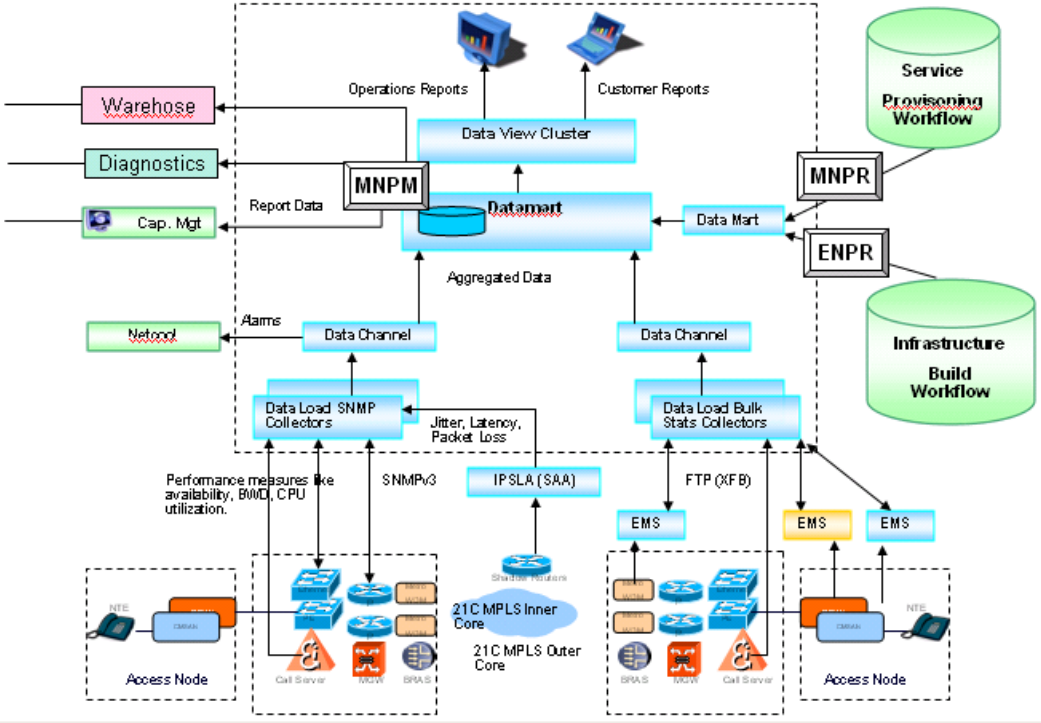


20CN Separate networks for each service

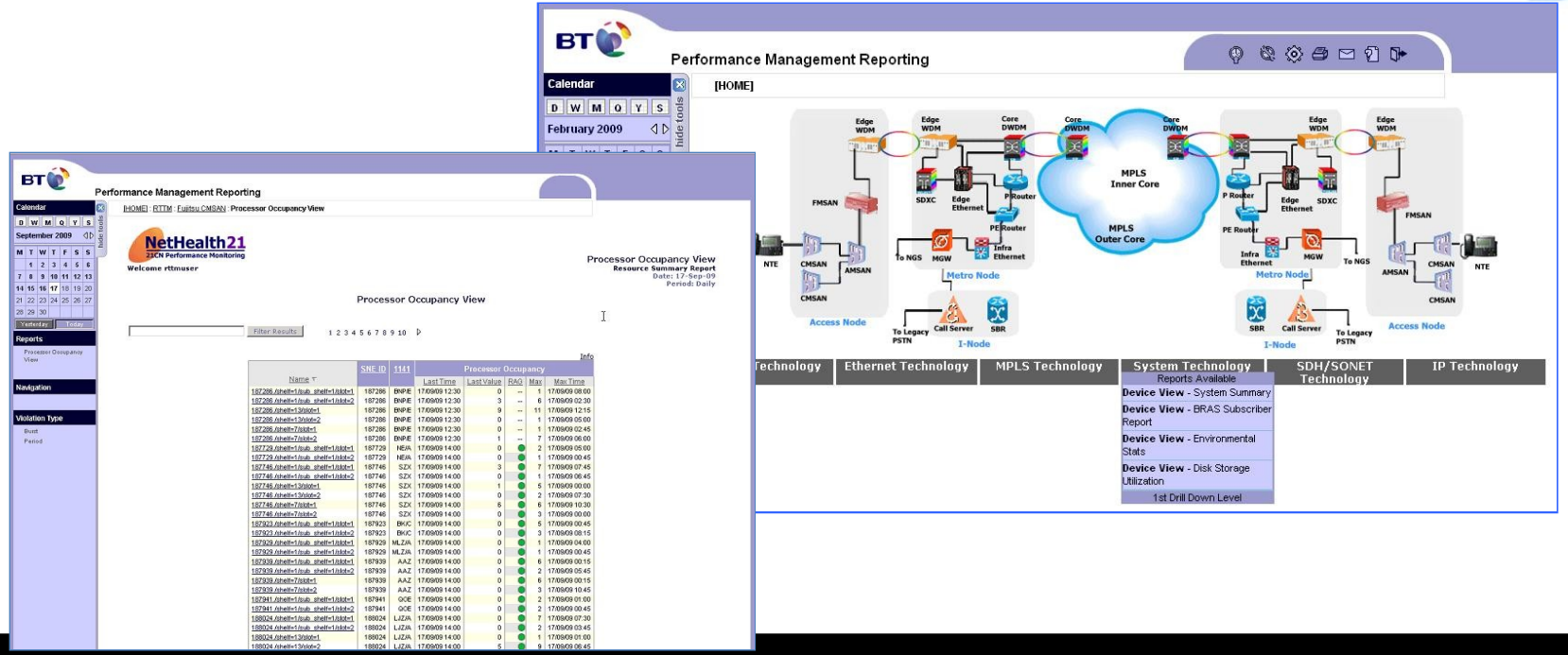


- “21st Century Network”: converged core with many applications overlaid
- - Voice (PSTN & VoIP)
- - Data (MPLS, DSL/Broadband)
- - Carrier Ethernet (esp. Mobile Backhaul)
- - VoD (Cisco CDN)
- - IPTV – Multicast IP (BT Vision / Canvas / Youview)

- Go Live 2006
- Multiple OSS feeds
- First use of SOA wrappers



#2 “Net.Health 21” Application= WS 21st Century Network



#2 “Net.Health 21” Application= WS 21st Century Network

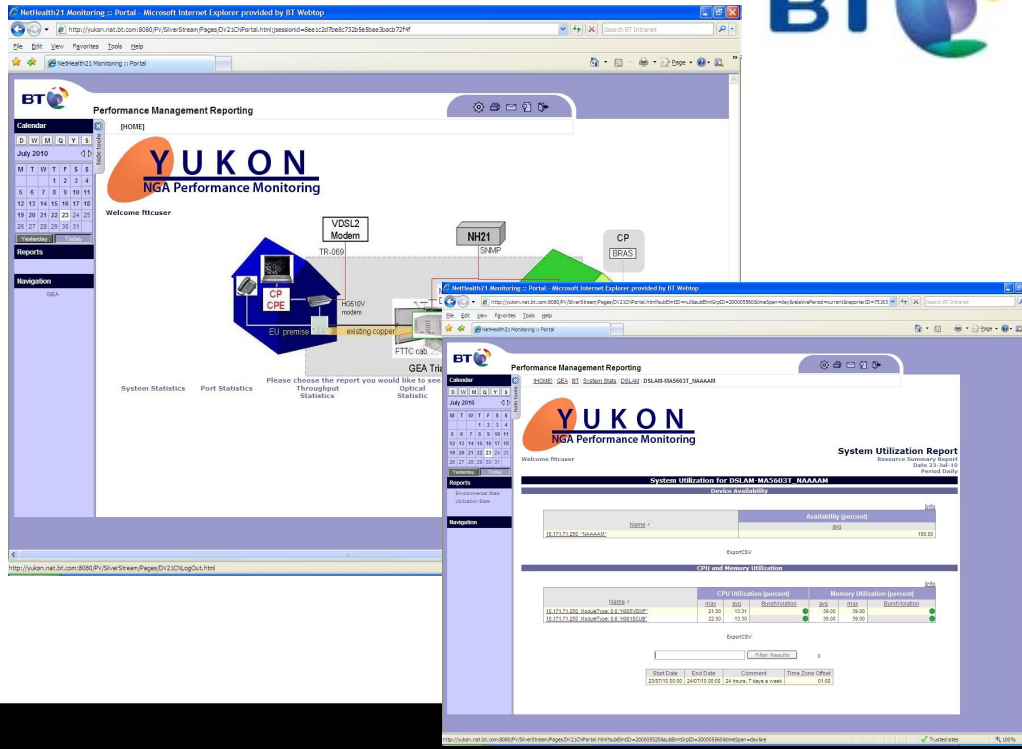
Info

Name	Device Availability (Percent)	CPU Utilization (Percent)		Memory Utilization (Percent)		NVRAM Utilization (Percent)		Temperature (Celsius)		Voltage Level	
	avg	max	avg	max	avg	max	avg	max	avg	max	avg
BRAS	99.839	73.000	4.305	53.000	27.150	--	--	57.00	32.88	9.99	2.47
Broadband Ethernet Aggregator	100.000	7.000	0.817	24.000	19.457	2.15	1.89	51.00	25.12	0.00	0.00
Call Server	--	--	--	--	--	--	--	--	--	--	--
CMSANs	--	57.000	23.438	68.000	55.319	--	--	59.00	46.31	--	--
Edge Ethernet Switch	--	--	--	--	--	--	--	--	--	--	--
Ethernet Aggregators	100.000	100.000	5.102	8.000	3.583	61.00	16.96	46.00	20.63	--	--
FER	100.000	5.000	1.027	24.000	18.849	3.59	2.11	46.00	22.56	0.00	0.00
FMSANs	--	--	--	--	--	--	--	--	--	--	--
FSP 150CCf-825	--	--	--	--	--	--	--	--	--	--	--
FSP 150CM 4U	--	--	--	--	--	--	--	--	--	--	--
FSP 150CPMR	--	--	--	--	--	--	--	--	--	--	--
Infrastructure Ethernet	99.015	17.000	1.203	28.000	18.802	4.39	1.49	124.90	23.13	0.02	0.00
Infrastructure Ethernet Aggregator	100.000	99.000	4.833	7.000	3.480	54.00	18.56	51.00	19.44	--	--
LNS	--	--	--	--	--	--	--	--	--	--	--
Media Gateways	100.000	11.000	2.321	89.000	33.526	--	--	38.00	25.95	3.34	1.68
P Routers	99.994	100.000	1.767	75.000	27.650	75.00	16.72	12.05K	810.36	12.08	2.57
PE Routers	99.983	72.000	2.071	100.000	25.368	21.00	14.05	39.00	13.30	12.04	2.45
PMR	100.000	--	--	34.000	27.875	34.00	24.45	51.00	26.71	5.32	3.07
SDH	--	--	--	--	--	--	--	--	--	--	--
WDM	--	--	--	--	--	--	--	--	--	--	--

Export CSV

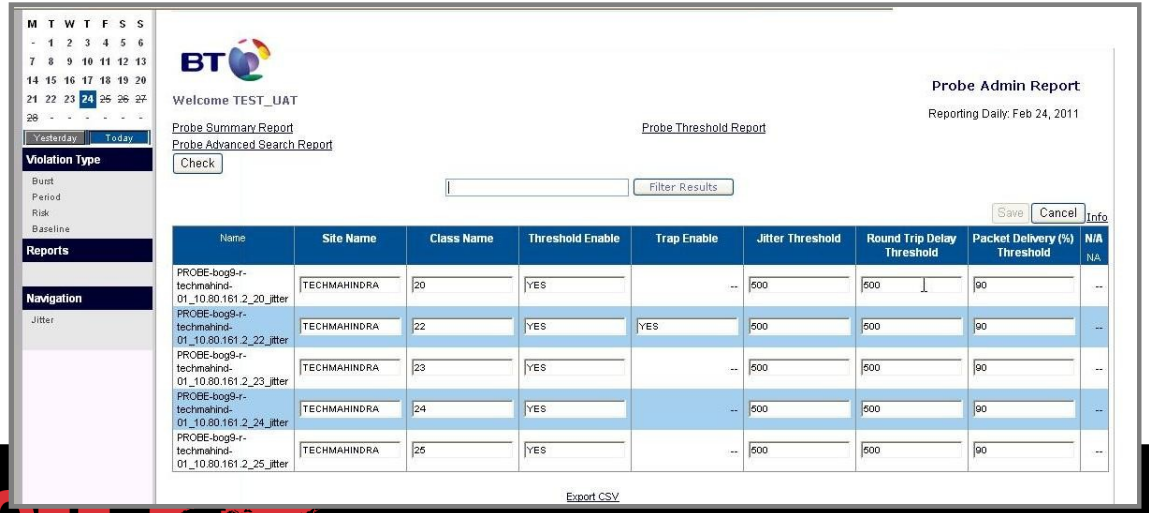
#3 – “Yukon” Application = Openreach NGA/FTTC Broadband

- Go Live 2008 (actually started on NH21)
- Simpler network MSANs (Huawei/ECI)
- Simpler OSS integration
- Forecast to grow 5M+
- Proviso 4.4.3
- Full Sun Blade Deployment (T6340 + Sol 10containers)
- PM data used to tune the DSL profiles every day DV-API !!
- First Entirely BT deployment, offshore dev.



#4 – Ontario (GS Managed Services)

- Go Live 16/Feb/2011 !!
- First TNPM 1.3 (offshore dev team)
- Expanded use of self-service (e.g. for threshold setting with properties)
- Sun/Solaris for DC/DM and Intel/Linux for SNMP Pollers




BT
Bringing it all together