

What's Happening in the Esoteric World of Carrier Grade Linux?

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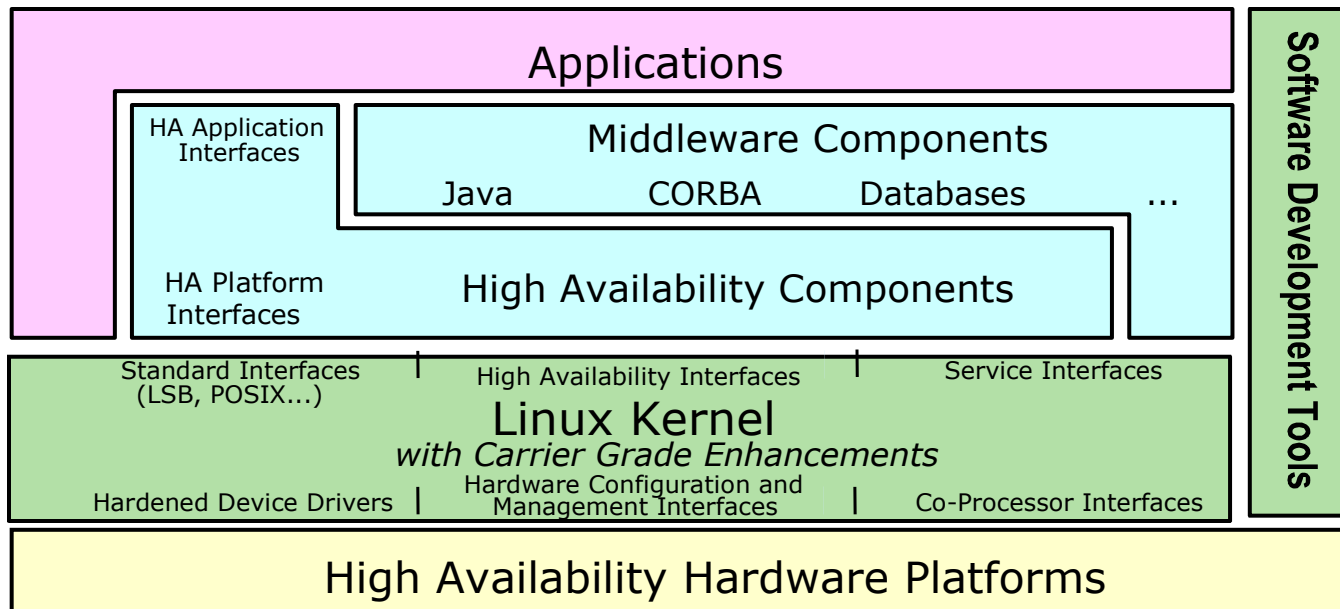
An Introduction....



- ◆ Carrier Grade Linux from the perspective of a long time observer and user of the technology
- ◆ Two panel members today that have nurtured, guided, championed and directed the fine work of many individuals that have made CGL a reality...
 - ◆ Bill Weinberg, linuxpundit.com
 - ◆ Glenn Seiler, Director Wind River
- ◆ Note of thanks...
 - ◆ Dan Cauchy, Director MontaVista, chairperson CGL Working Group

What is “Carrier Grade” Linux???

◆ What is Carrier Grade Linux?

- ◆ A set of specifications which details standards that a Linux distribution must meet to be considered “carrier grade” - ready for “extremely reliable” operations
- ◆ It is NOT a separate branch of Linux kernel!!!!



-  *Scope of the Carrier Grade Linux Working Group*
-  *Scope of the Service Availability Forum*

Why and What????

- ◆ Why have a “Carrier Grade” version of Linux???
- ◆ Linux adoption by such a broad range of technologies is massive
- ◆ The dominant development energy goes into the largest market
 - Desktops and Servers
- ◆ Addresses critical needs of telecom, HA, fault tolerant systems
- ◆ What is in a CGL distribution?
- ◆ Like a Red Hat or Ubuntu distribution – but different!
- ◆ Kernel based on the standard source tree (kernel.org) but...
 - Less emphasis on graphics, desktop tools, Web/file server functions
 - More on fault tolerance, system monitoring, serviceability
 - Architected for gateways, signaling and management systems



A Brief History of CGL

- ◆ Need for a standard-based Linux to better match evolving COTS hardware groups specifications
 - ◆ Wide variety of platforms, CompactPCI & ATCA, Blade Servers
- ◆ Group of platform vendors, Linux distribution suppliers and network equipment providers met to define a set of standards to meet the demands of carrier-class network equipment
- ◆ Initial workgroup formed at Open Source Development Labs
 - ◆ Early 2002 - spec. 1.1 released, 91 requirements, 9 companies
 - ◆ 2004 – 2.0.2 released: 150 requirements, added clustering and security. Many contributors
 - ◆ 2006 – version 3.2 released: better definitions of priorities, additional requirements
 - ◆ 2007 – now under Linux Foundation: release 4.0 announced. 240+ requirements. Influence from SCOPE Alliance Linux profiles



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Focus Areas

◆ CGL Focus Areas:

- ◆ Availability – 24/7 operation, monitoring, redundancy, live updates
- ◆ Clustering – defines model for High Availability Clusters
- ◆ Serviceability – servicing and maintaining systems, SNMP, IPMI
- ◆ Performance – latency, predictability and scalability; methods and tools
- ◆ Standards – compliance with LSB and SA Forum, SCTP, POSIX etc.
- ◆ Hardware – defined COTS platforms, multiple architectures
- ◆ Security – Address security requirements for carrier type systems

CGL Today

◆ Release 4.0, the latest baseline

- ◆ Tighter requirements
- ◆ Addressed many TEMS “wish list” items
- ◆ 3 companies have approved registrations



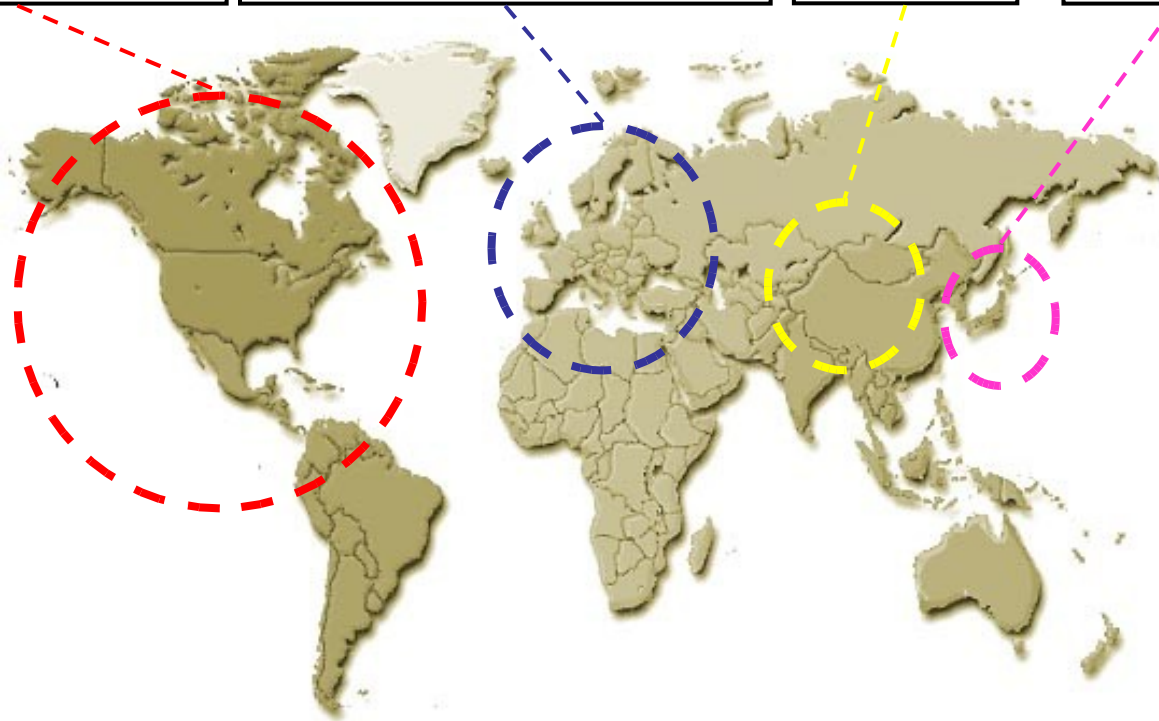
◆ Example Requirements

- ◆ SCTP – Stream Control Transmission Protocol
- ◆ Application Heartbeat Monitor
- ◆ SA Forum API support (OpenAIS)
- ◆ IPMI Local Management APIs (OpenHPI)
- ◆ IPsec



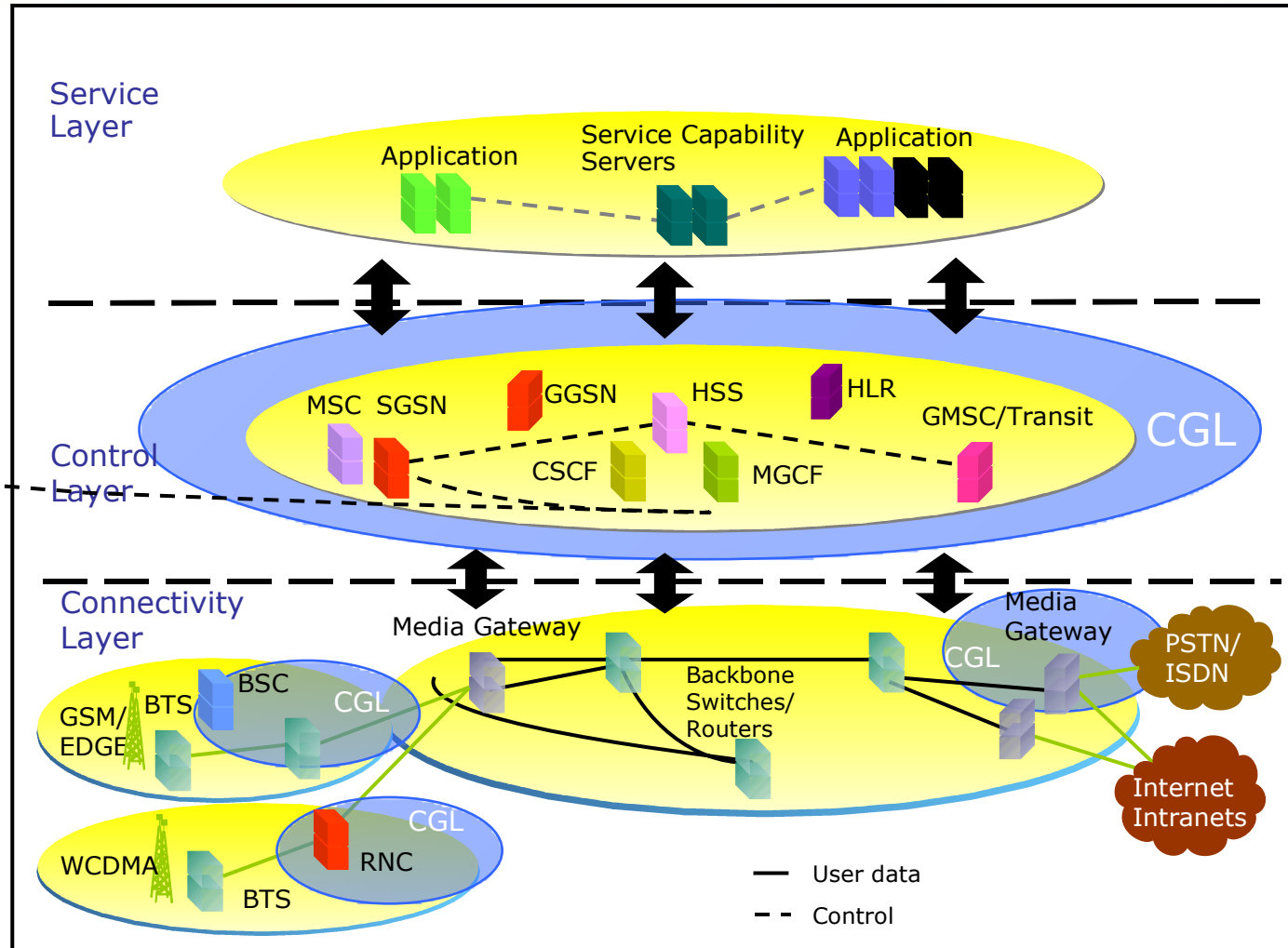
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Carrier Grade Linux Application Deployment



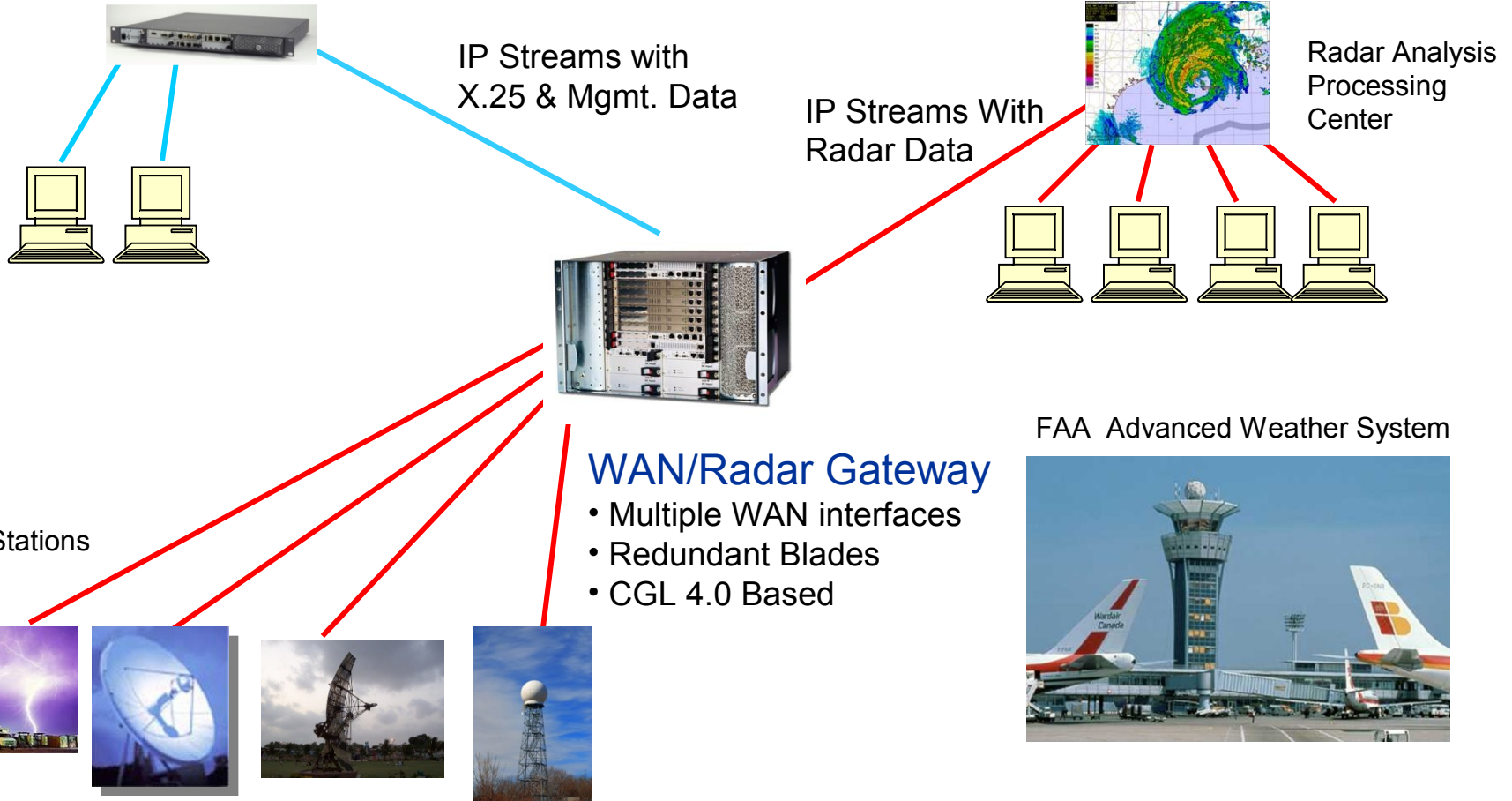
CGL Nodes in NGN - Today

- NEC (GGSN, SGSN)
- China Unicom (WAP Solution)
- Alcatel (MMS Solution)
- Motorola (Radio Signaling Controller)
- Huawei
- Iskratel (Soft Switches)
- Korea Telecom



CGL in use – beyond Telecom

- Radar Monitor/Controller
- Monitors and controls many Radar Gateways
- CGL 4.0 Based



Summary

- ◆ Carrier Grade Linux, now in its 4th generation is well established and mature, meeting many of the needs of equipment manufacturers
- ◆ CGL deployments are worldwide and are extending well beyond telecom into other rugged environments such as aerospace and defense
- ◆ It may seem *esoteric* – unless you use a phone or travel by air – it is everywhere and is touching all of us!

Thank you