# Open Standards for Carrier Grade Linux

Historically, communications and data service network providers built on proprietary platforms to meet availability, reliability, performance, and response-time requirements. These platforms were closed systems, expensive to develop and maintain, and lacked support for 3rd party SW and emerging standards.

Today, the industry is turning away from proprietary platforms towards open, standards-based building blocks for hardware, OS, and high availability middleware. This approach offers cost-effective, timely delivery of new architectures, new services, and increased bandwidth, while supporting required high availability, scalability, security, reliability, and maintainability.

The single most promising OS platform to meet stringent carrier requirements is Linux. To foster the advancement of Linux in the communications infrastructure, the Open Source Development Labs (OSDL) has convened the Carrier Grade Linux (CGL) Working Group to define and evolve a CGL specification.

## OSDL and the CGL Working Group

OSDL is a non-profit organization founded in 2000 to accelerate the growth and adoption of Linux in the enterprise. Sponsored and sustained by top IT and communications industry leaders, OSDL supports and drives the evolution of Linux, and promotes the use of open source and Linux. The CGL Working Group was established in January 2002 to enhance Linux for use in a highly available, secure, scalable, and maintainable carrier grade system.

## CGL Working Group

The CGL Working Group consists of leading network equipment providers, system integrators, hardware platform providers, Linux distributors, and carriers, working to define, collect and prioritize requirements that enhance standard Linux for demanding carrier environments.

The CGL working group consists of three distinct sub-groups.

- **Steering sub-group:** This sub-group oversees the CGL initiative and provides directions to the marketing and technical sub-groups.

- **Marketing sub-group:** The Marketing sub-group collects market requirements from member companies, prepares marketing documentations and presentations, organizes meetings, conferences and panels, and prepares press releases. The Marketing sub-group is also active in the process of registration of CGL distributions through its Registration task team. The Registration task team defines registration metrics, interacts with companies developing CGL-based products and performs registration processes based on a series of checks and metrics.

- **Tech Board sub-group:** The CGL Tech Board sub-group is responsible for the CGL Specifications and the CGL Development task teams. The Specifications task team collects and defines requirements for carrier grade enhancements in Linux, for carrier applications. This task team categorizes, prioritizes and publishes requirements in the CGL specification to guide Linux distributions in the delivery of capabilities. The Development task team solicits, generates and consolidates documents detailing the design of CGL features and technology. It provides guidelines for the implementation and integration of core Carrier Grade enhancements in Linux. In many cases the task team contributes source code to already existing projects or starts new open source projects to meet CGL requirements.

## The CGL Advantage

Today, key architects and stakeholders of communications infrastructures are defining CGL and participating in its realization. Since its inception, Carrier Grade Linux has enjoyed rapid uptake and successful adoption. Multiple Linux distribution suppliers today ship products based on CGL specifications, with current and increasing deployment into infrastructure build-out.

Carrier Grade Linux offers deployers and users unique competitive advantages and truly delivers on the promise of Linux: rapid innovation, lower total cost of ownership, superior stability, reliability, availability and scalability required for next-generation communication systems.
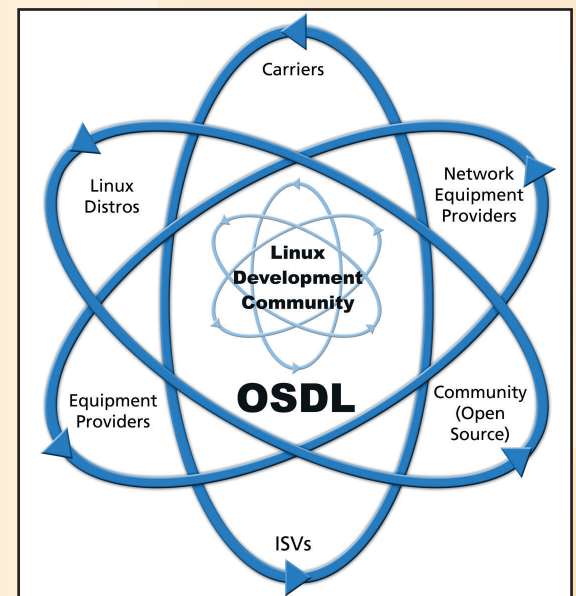


*Center of Gravity for Linux*

## CGL Requirements Definition

The CGL requirements definition specifies capabilities in several areas:

### Standards Compliance

For broad industry support, the CGL WG works with other standards bodies and stipulates compliance to published standards, including Linux Standard Base (LSB), POSIX, IPv6, Service Availability™ Forum (SAF) and PICMG® (PCI Industrial Computer Manufacturers Group).

### Hardware

OSDL CGL includes guidelines that define interactions with common-off-the-shelf (COTS) carrier hardware platforms. Examples of hardware capabilities include:

- CPU Blade Hot Swap
- Hardware platform management
- Trusted hardware power management

### Availability

Carrier systems require enhanced availability, including improving robustness of software components or supporting recovery from hardware or software failure:

- Online operations
- Redundancy
- Monitoring

### Serviceability

These requirements target servicing and managing hardware and software on carrier systems. These wide-ranging requirements enhance serviceability of the application and the OS:

- Remote management
- Diagnostic monitoring
- Failure analysis
- Debugging tools

### Clustering

These requirements allow use of multiple carrier systems for higher levels of availability through redundant resources and recovery capabilities, and provide a horizontally scaled environment with increased throughput.

### Security

CGL security requirements promote acceptable levels of security without compromising goals for high availability, performance, and scalability.

### Performance

CGL requires performance to meet carrier needs:

- Efficient load balancing / SMP support
- Optimized protocol stacks
- Large physical memory support
- More real-time support with low predictable responsiveness

### Contact Information

www.osdl.org/lab_activities/
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### CGL Participation

Participation in OSDL CGL is open to everyone, whether representing a company or as an individual contributor. To participate, contribute, or just learn more, visit the OSDL web site at **www.osdl.org.**