How DSO, COTS, and open architectures can help solve the looming telecom software crunch

By Michael Christofferson

Complex distributed telecom and networking applications require a new method of development. Michael makes the case that by using industry standard interfaces and open architectures, NEPs can greatly accelerate the development of applications and systems.

Worldwide, most network equipment makers have already abandoned the practice of creating their own proprietary DSPs, network processors, operating systems, protocol stacks, and management tools. Many, however, are still creating significant pieces of their application-specific hardware and software infrastructure from the ground up, constantly inventing and reinventing the wheel from one project to the next. For these equipment makers, many of whom are trimming engineering staffs in order to contain costs, this homegrown approach is becoming increasingly untenable.

According to industry analyst Venture Development Corporation (VDC), the amount of code deployed in today’s network equipment is growing exponentially — currently accounting for more than half of total project costs. Meanwhile, the number of available developers is growing at a relatively flat pace, thereby creating a serious mismatch that makes it increasingly difficult to meet time-to-market windows. Already, VDC estimates that 50 percent of device projects fall behind schedule by an average of four months.

The world’s approximately 600,000 developers cannot keep up with the rocketing demand for device software required by today’s smart cell phones, automobiles, appliances, and entertainment systems. In addition, manufacturers are facing the twin challenge of ever-shortening production cycles to meet competitive marketing pressures while at the same time having to handle exploding device complexity as end users demand new features and sophisticated capabilities.

To ease this software development challenge, and to make do with leaner engineering staffs, many equipment makers are embracing a new development process. An approach known as Device Software Optimization or DSO, represents a fundamental rethinking of the design process, leveraging products and practices that embrace reusable code, open standards, and preintegrated Commercial Off-the-Shelf (COTS) technology, standardized across the enterprise (not just across a single development group).

Equipment makers using a combined DSO and COTS paradigm can trim their platform teams by up to 80 percent. Manpower cost is reduced, and NEPs can allocate their engineering resources to value-added application and service development.

Advantages of an open architecture platform for telecom

By using a preintegrated DSO telecom platform, telecom developers can shorten the lengthy platform design/integration process into an evaluation and purchasing process that can take as little as two months. All told, this COTS approach can shorten the application development cycle by up to 50 percent.

An open architecture platform’s layer of abstraction clearly separates telecom applications and the underlying hardware and system software. This layer of abstraction, coupled with the use of standard interfaces, enables designers to use best-of-breed COTS hardware and software from multiple vendors. It also enhances portability, allowing NEPs to upgrade hardware and software at later dates with minimal disruption to their proprietary applications.

Open architecture telecom platforms provide the basic components needed to develop and host telecom applications and services. Figure 1 shows the components typically represented by the Enea Networking Application Services Platform (NASP) platform:

- Operating systems
- Interprocess Communications (IPC), such as Enea LINX and Open Source IPC technology
- High Availability (HA) middleware framework that is Service Availability Forum (SAF) compliant
- Database management system

![Figure 1](image-url)
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challenges of reduced production cycles and ever-increasing software complexity, a growing number have recognized that they can no longer remain competitive by creating, maintaining, and porting platform software in-house. Field-proven, pre-integrated COTS network platforms allow NEPs to outsource their platform design, focus engineering resources on value-added applications and service development, and get their completed designs to market on time and on budget.

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