Creating a mainstream market for standards-based platforms

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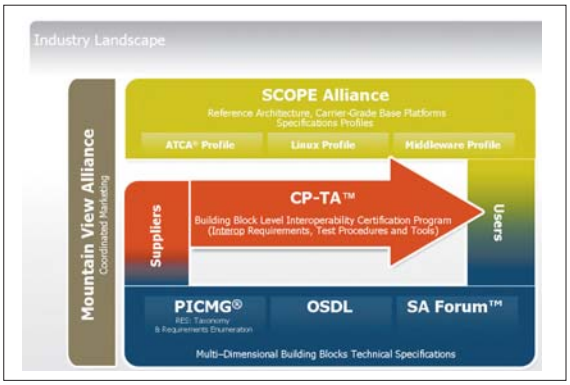
The Communications Platforms Trade Association (CP-TA) was formed to address the interoperability certification requirements in all aspects of communication platform interoperability, ranging from the physical environmental attributes of a module through the services of its operating system to the ability of the high availability middleware to cooperate with its peers.



The Wikipedia defines standardization as "the process of establishing a technical standard among competing entities in a market, where this will bring benefits without hurting competition". The benefits of standardization are well understood – lower costs, broader product innovation and availability, improved time-to-market and more effective communications. However, the barriers to realising these benefits are equally well known – incompatibility with existing products, early adoption is slow (the chicken and the egg syndrome), lack of proven interoperability and the sheer number of standards. The number of standards development organizations has led to the oft-quoted statement attributed to Andrew S. Tanenbaum, "The nice thing about standards is that there are so many to choose from".

To overcome these barriers and fully realise the benefits of standardization, the following must be true. 1) To overcome the earlier inertia and incompatibility issues, there must be focus on a specific, broad impact market need that creates the "demand for standardization". 2) To allow the vendor ecosystem to fully develop to provide broad product choice and to achieve the necessary economies of scale, standards that meet the demand must be selected and assembled into a "solution". To avoid vendor fragmentation, options within the standards that address non-targeted industries or needs must be minimized. 3) To eliminate risk and concern in the user community, interoperability standards must be developed and validation processes established. Without these, there can be little confidence that all vendors have implemented the standards "correctly" or in an interoperable fashion. When all of these elements fall into place, a move to "standards-based solutions" can succeed and entire industries can move forward. If any one element is missing, people will talk about "using standards" but not be able to realise the full benefits that can be delivered by them.

Standards have played a crucial role in the telecom industry, providing the necessary connectivity and interoperability capabilities that allow communications networks around the world to provide global voice services. Similarly, new standards have been defined (or are evolving) to provide for the delivery of "next generation" services, characterized by rich multimedia (voice, video, data) and "transparent" access. Network Equipment Providers (NEPs) are being challenged to deliver next generation services as quickly as possible. Almost diabolically, this demand for new products is occurring at a time when many NEPs have been forced by a lengthy downturn in the economy to downsize their organisations and reduce development budgets. This intersection of market and economic forces has forced the NEPs to re-evaluate their product strategies and to re-focus their development investments in areas that will provide them with maximum return and market advantage. To meet this demand within their current manpower and budget constraints, many NEPs are changing the computing platform element of their overall product strategy. They are moving to an open, standards-based common platform as the basis for their product portfolios.

Traditionally, the computing platform foundation for a communications product was a highly customized, proprietary design optimised for the specific application being developed. This not only incurred lengthy design and development cycles, but also caused a proliferation of different systems that had to be maintained and supported throughout a lengthy deployment period, typically 10 to 15 years.

By shifting to a standards-based common platform strategy, NEPs could speed product delivery through the reuse of the computing foundation for their products and focus their development efforts on next-generation applications and services. A common platform would also reduce operational costs throughout the long life of the product. The use of a standards-based solution would drive down costs and enable the creation of an industry ecosystem that could deliver the necessary computing products to meet a wide range of application needs.

The need for a new, standards-based communications computing platform began to emerge

in 2002...2003, with NEPs beginning to identify the standards that would be the basis for the "common platform". The Advanced Telecom Computing Architecture (AdvancedTCA) was gaining momentum as the hardware foundation for the next generation of carrier-grade communications equipment. OSDL – Carrier Grade Linux was gaining acceptance as the operating system. Platform management and high availability requirements could be met by specifications for the Service Availability Forum (SA Forum). Each of these standards met specific requirements for the telecom industry.

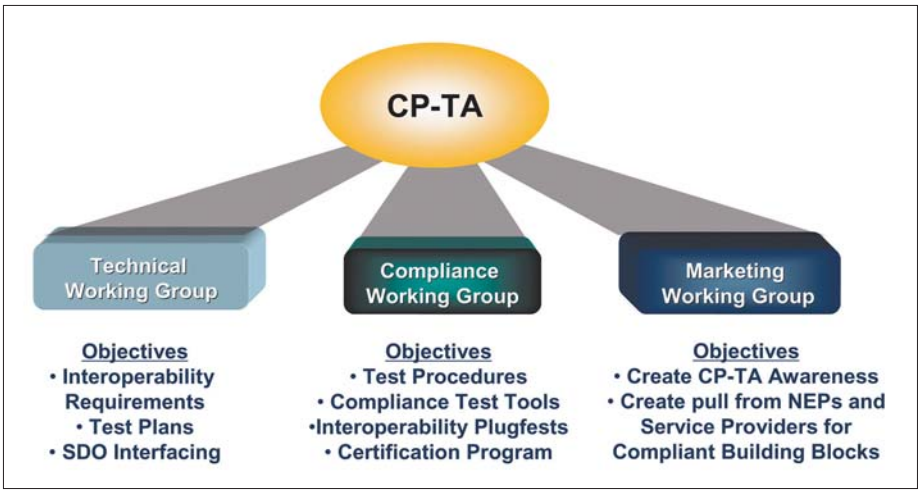
In 2006, two new industry organizations were created, completing the necessary requirements for the development of a mainstream market for a standards-based communications platform. In early 2006, the SCOPE Alliance was formed to enable and promote the availability of open carrier-grade base platforms based on commercial off- the-shelf (COTS) hardware/software and free open-source software building blocks. In April, the Communications Platforms Trade Association (CP-TA) was formed to address the interoperability certification requirements. All the essential elements for creating a mainstream market are now in place – demand, essential standards and solution definition, and interoperability validation.

In earlier years, the evolution of the architecture for the telecommunications network was carefully mapped out and NEPs were able to commence the development of a product line knowing that they could rely upon a predictable and stable set of requirements. Service providers also could plan well in advance for a structured deployment, rolling out services that looked forward to a guaranteed, long-revenue-generating life. Today, the communications industry is an environment where the architecture of the network is evolving rapidly. New additions to the network architecture are appearing all the time.

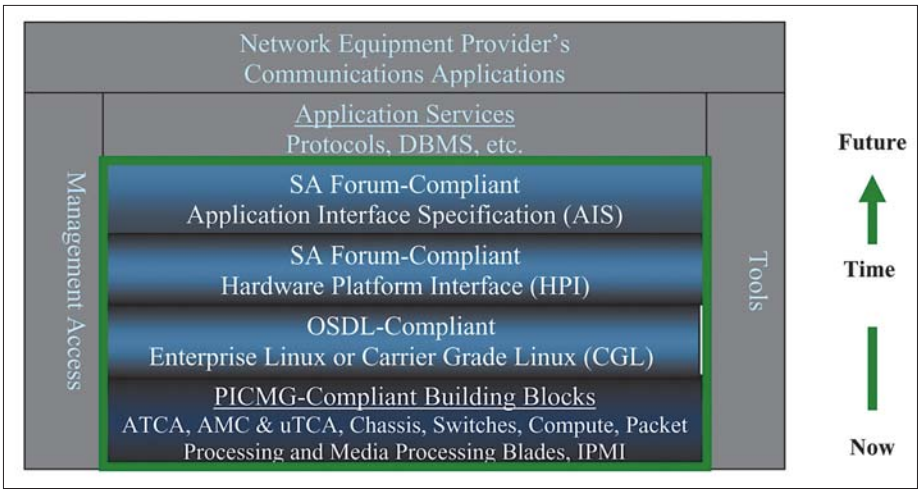
Whether they are planned enhancements, such as IMS or have not been formally anticipated such as home access points for the 3G network, service providers demand that such infrastructure be made available immediately. At the same time, there is less of a guaranteed return on investment for such deployments because it is less certain in this highly competitive industry that a particular class of service will enjoy a long period of enthusiastic subscriber support. These pressures result in the need for telecommunication service delivery platforms to be architected for flexibility in deployment, with a rapid time-to-market, and to be available with ever lower purchase (CapEx) and operating (OpEx) costs. Therefore, communications platforms need to be built around open-standards COTS modules. The developer of a communications platform – whether an OEM, NEP or service provider – is very reliant upon being able to have the COTS modules from multiple vendors interoperate.

For all concerned in the development, integration and deployment of a service platform, protection of the investment made in the platform is crucial to its business viability. This extends to having a reasonable expectation that not only do the individual modules work well together today, but that in the future new modules can be brought into the platform to enhance the services that it provides with minimum risk. To achieve this, industry must be able to satisfy itself that individual modules conform to an interoperability standard – a stronger level of confidence than would come from plain" compliance" testing.

To illustrate, within the AdvancedTCA standards there are myriad degrees of freedom in relation to the implementation choices that can be made. It is therefore possible for a module to properly claim compliance to the appropriate AdvancedTCA PICMG specifications yet for it not to be interoperable with other AdvancedTCA-compliant devices. This is where the CP-TA comes into play to specifically address this issue. The CP-TA has the charter to consider all aspects of com-



CP-TA working groups



CP-TA scope

munication platform interoperability, ranging from the physical environmental attributes of a module through the services of its operating system to the ability of the high availability middleware to cooperate with its peers. In the interest of expediency and with a pragmatic view of tackling the sphere of interoperability issues in manageable chunks, CP-TA is initially focusing on interoperability at the level of AdvancedTCA. Critical to the success of CP-TA is that an appropriate choice of options from the AdvancedTCA menu is made. CP-TA will not produce a definition as to which menu choices should be made for interoperability in isolation from the industry. CP-TA is committed to taking guidance from the communications industry's SCOPE initiative and adopting the recommendations from PICMG's Requirements Engineering Subcommittee (RES). It is important to the CP-TA that it is categorical in affirming the role of PICMG as the AdvancedTCA specifications body. CP-TA will not be adding any "normative" language to the definition of a CP-TA interoperability profile that would conflict with the underlying PICMG specification. If any potential areas for confusion are identified, the CP-TA would seek to clarify these through PICMG's change request procedures. To promote interoperability, the CP-TA must first correlate the various choices made from within the standard and articulate them in detail within an interoperability design requirements document.

To be commercially successful, the AdvancedTCA ecosystem must demonstrate interoperability across vendors' products. Hence, the prime purpose of CP-TA is to define a suite of interoperability tests that allow conformity with the detailed interoperability requirements document to be demonstrated. The CP-TA is working to produce a suite of compliancy tests and intends to promote a program to allow vendors to claim their conformity with the CP-TA interoperability standard.

The evolving family of open specifications such as PICMG 3.0 and AMC.0 series, and the SA Forum specifications established the architectural foundation for building off-the-shelf carrier-grade base platforms. These industry initiatives will continue to deliver high-quality technical specifications for multi-dimensional building blocks and develop taxonomy and requirement enumeration as needed. Further accelerating the trend toward COTS hardware/software and free open source software for communications infrastructure, a group of leading NEPs has formed SCOPE Alliance with an eye on the needs of the end customer – the service provider. SCOPE will publish profiles for carrier-grade communications platforms based on existing specifications. Following the formation of SCOPE, the CP-TA

launched with 20 founding members representing a broad cross-section of the modular ecosystem, consisting of HW and SW building block providers, tool vendors, system integrators and NEPs. In principle, CP-TA will develop interoperability test requirements coupled with detailed test procedures that are supported by industry-harmonized automated test suites and benchmarks. To deliver on these objectives, the CP-TA is organized into technical, compliance and marketing working groups.

The first step toward improved interoperability is for the Technical Working Group (TWG) architects to distill a set of interoperability test requirements based on existing open specifications from the SA Forum, PICMG and OSDL and on system-level profiles developed by SCOPE. The immediate priority is to comprehend interoperability requirements from the just-released SCOPE profile for AdvancedTCA, including interoperability criteria for thermals of boards and shelves and requirements for manageability and fabrics. Periodically, the scope will expand to include future SCOPE profiles as well as interoperability aspects of emerging technologies such as AdvancedMC, MicroTCA and OCGL. The next step is compliance testing for these interoperability requirements. In close collaboration with the TWG, the Compliance Working Group (CWG) develops detailed test procedures and underlying test tools linked with each of the interoperability requirements. The test procedures for software-based interaction such as for manageability testing lend themselves well to automated test suites. Others, such as thermal test of shelves and boards, may require building of specialized hardware benchmarks. Periodic CP-TA interoperability plugfests will offer a confidential environment for the CP-TA community to align the execution of CP-TA tests as well as offer a true multi-vendor environment for enhanced interoperability testing. Applying objective, consistent interoperability criteria and methodologies to validate them will result in improved interoperability.

The ultimate mission of the CWG is to build and operate a cost-efficient certification program for the CP-TA community. The Marketing Work Group (MWG)'s key role is to foster preference for certified interoperable products through the ecosystem by creating a strong pull from NEPs and SPs. The growing acceptance of open, standards-based communications infrastructure based on the aforementioned family of specifications is fast becoming an irreversible trend. As system integrators and NEPs race to deliver carrier-grade solutions on flexible platforms, improving interoperability of components from different vendors is crucial. CP-TA is bringing together the component suppliers, system vendors and service providers in a concerted effort to specify, develop, certify and deploy interoperable modular solutions.

Ultimately, a successful CP-TA certification program has to deliver tangible economic benefits through the value chain. CP-TA-certified building blocks and base platforms consistent with SCOPE profiles will help NEPs simplify the process of selecting interoperable building blocks, increase supply chain flexibility, ease platform integration and reduce lifecycle management costs. Service providers will be able to increase the flexibility and scalability of their network as well as realize faster time-to-market with new, agile services. Interoperability is the key to realizing the tremendous market potential of the open standards-based communications platforms industry. CP-TA has unlocked it by announcing the development of interoperability test requirements, detailed test procedures, and automated test suites and benchmarks that are quickly gaining support and momentum in the industry. The mainstream market for communications platforms has arrived. ■