High-Availability Standards – Key to Success for Telecoms

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Tremendous Business Potential through Paradigm Shift

The communications paradigm shift from traditional voice services provided on proprietary, circuit switched technology to standard, off-the-shelf IP based general purpose, multi-channel services is more than just a technological step in a specific industry, in particular if combined with the trend to mobility. Many industry segments and market segments are affected by this technology change (Joerg Zobel[1] uses the term *discontinuous innovation*):

- ▶ financial services and their associated business processes

- ▶ entertainment and the way we sell and buy information

- ▶ communications device and network manufacturers have to re-invent their business and the know-how required to stay in business

- ▶ network operators and service providers re-implement their networks as the basis of their business

- ▶ all types of business segments will enhance their internal processes, but also their customer processes to take advantage of the available potential (either to gain new market share or to maintain current business).

Services and Volume Growth

The expected proliferation of IP based, general purpose, multi-channel services will also have implications on the service structure and their implementing nodes. The number of users per service will grow tremendously. The Meta Group expects a CAGR of 122% for voice services in a business environment through 2005. This will also affect the scalability and availability requirements on the implementing network nodes[2].

## Availability Key Factor in Exploiting Potential

This tremendous potential can only then be fully exploited if the provided services and technology can support a similar level of availability as the "plain old telephony system" does. As service availability is a complex and extremely expensive aspect to be implemented in a broad manner, adequate standards for availability features and functions and their management must be specified. These standards need fostering in the broadest way to bring them to fullest fruition by service developers, providers and operators. Only then will service users adopt the offerings to further the business potential at hand.

Value Chain Based Approach to High-Availability Eco System

An analysis of the service value chain shows that availability is becoming an intrinsic component in each of the steps. The availability eco system reflects this fact. System level interfaces give guidance to hardware vendors on the required functionality and the interfaces to support. Application level interfaces provide the necessary groundwork for developers of highly available services and applications. Management interfaces are available for the operation and maintenance of high-availability services. Last, but not least, following a given service availability framework, the implementers of high-availability features and functions need to use and respectively implement the above mentioned interfaces.

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[1] Mobile Business und M-Commerce (Die Märkte der Zukunft erobern). Jörg Zobel. Carl Hanser Verlag, München, Wien (www.hanser.de). ISBN: 3-446-21618-9. 2001

[2] IT-Technology for High Available Solutions in the Telco Environment (RTP - Reliant Telco Platform). Konrad Wiesneth / Stefan Arntzen. Fujitsu Siemens Computers. 0-7803-6317-5/00/$10.00 ©2000 IEEE.

Service Availability Forum: Work Centered around Standards and Openness
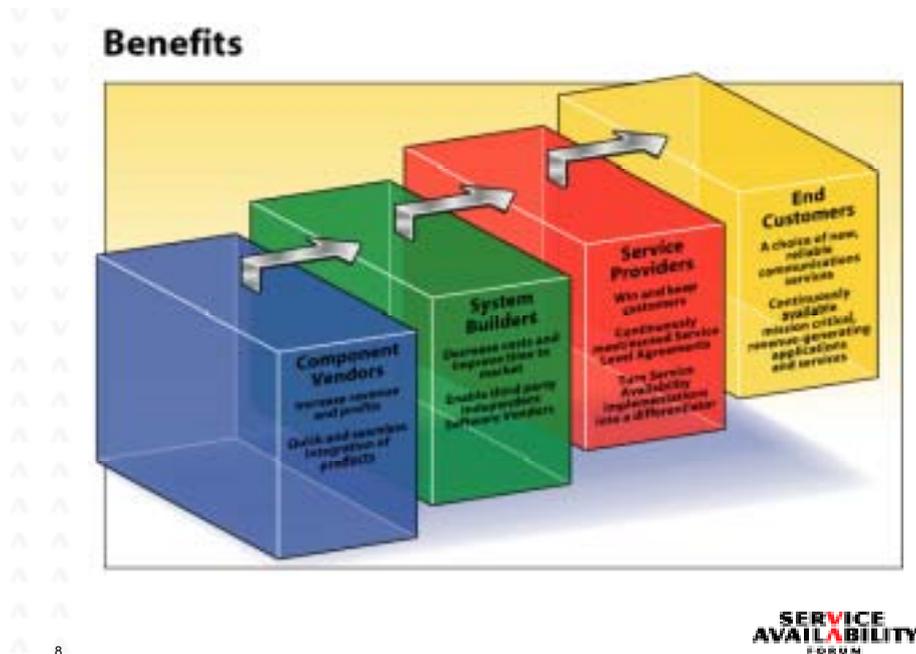
The support for open systems and openness of the specifications are key for the Service Availability**™** Forum[3] technical work. That means that the interfaces are independent of any proprietary products and the specification process is open for the industry community working on availability or implementing high-availability products.

Verification specifications will support the neutral evaluation of Service Availability Forum compliant implementations. Existing standards will be referenced as far as available. A framework approach is taken to put the provided features and interfaces in scope with other developments and specifications (standards). (Industry) standard methods and tools will be used to make management and application interfaces as well as system interfaces available in the shortest possible time.

Fujitsu Siemens Computers accomodates this development and supports the Service Availability™ Forum as a member. Fujitsu Siemens Computers has many years experience in the area of availability hardware and software. Fujitsu Siemens Computers offers both standard cluster frameworks (PRIMECLUSTER) and additive middleware (RTP[4] Continuous Services (Resilient Telco Platform)).

Fujitsu Siemens Computers' contribution

PRIMECLUSTER provides an extensive suite of cluster products for the whole range of enterprise-wide applications to prevent failures or malfunctions from occurring in the IT infrastructure and thus eliminating serious or even fatal results. It has been developed with the Business Critical Computing needs of enterprises in mind and aims to redefine availability to include not only the uptime of a server, but focuses on the entire hardware infrastructure including the network and the storage devices. In particular, a variety of mechanisms are provided to implement high availability and scalability on any layer of today's multi-tier enterprise applications.

RTP[4] Continuous Services enhances the fail-over cluster concept by distributing the application and enabling transparent and seamless recovery actions. The first generation of RTP[4] Continuous Services is widely used in the telco environment and shows that an availability of five nines is achievable and can be demonstrated with standard UNIX systems.

At Fujitsu Siemens, the reliable implementation platform for such systems consists of SPARC based PRIMEPOWER or Intel architecture based PRIMERGY servers with Solaris and Linux as the respective operating environments. These operating systems are strategically positioned by Fujitsu Siemens as reliable platforms for

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[3] Service Availability Forum White Paper: www.saforum.org

business critical enterprise solutions. Fujitsu Siemens is working with Red Hat and SuSE to enhance carrier grade features in the Linux operating system.

The worldwide-available PRIMEPOWER servers combine mainframe-class availability, performance capabilities of vector-processing machines and the "open-world" benefits of UNIX® servers. The new PRIMEPOWER family has an extended Architecture for Business Critical Computing environments and is based on the industry-standard Solaris operating environment and the Fujitsu SPARC64™ microprocessor.