

T-Systems and Alcatel-Lucent deploy industry-first commercial 100 Gbit/s link spanning optical and IP routing technologies

[High Leverage Network™](#) architecture facilitates a leap forward in collaboration and cloud-based services for leading Universities and research institutions in Germany

Paris and Stuttgart, 14 June 2010 - Alcatel-Lucent (Euronext Paris and NYSE: ALU) and T-Systems, Deutsche Telekom's corporate customer arm, today announced they have achieved an industry first by connecting high-performance data centers of the Dresden and Bergakademie Freiberg technical universities with a 60 km link using commercial 100 Gigabit/second (100G) connectivity that leverages both IP and optical technologies. This unique combination enables unmatched end-to-end scalability, performance and compatibility across core, edge and metro networks. The data on the 100G link between the two universities are processed in real-time and are being transmitted on a single wavelength - an industry first.

The extremely high bandwidth of 100G communications technology will improve the cooperation between research facilities and will be used to facilitate more advanced cloud service delivery options and pave the way for proliferation of collaborative multimedia applications. Specifically this new broadband link will provide the research data centers an environment in which they can evaluate the properties of bandwidth-intensive applications and services under realistic conditions. Researchers of both universities are using the installation to study the resource requirements of clustered virtual servers, Lustre wide-area file systems, network-attached storage and real-time video conferencing applications under heavy load.

Business and private customers of Deutsche Telekom are using ever more varied and complex applications. Science and research are early adopters of this trend. "As far as network performance is concerned, there is no doubt that we are on our way to the gigabit society, which requires gigabit networks," says Hagen Rickmann, who is responsible for Innovations and Portfolio Management at Deutsche Telekom's T-Systems unit. "We must ensure that we can adapt our networks to the constantly increasing demand for bandwidth anytime and in an economical way. Testing the new 100 Gigabit technology between Dresden and Freiberg under real conditions is an important milestone on this way."

The Center for Information Services and High Performance Computing (ZIH) of Technical University Dresden and the Technical University Bergakademie Freiberg will exploit the next generation of network technology to test their application scenarios at an unprecedented level of performance. For distributing data with the Lustre wide-area file system, ZIH will work closely with Indiana University in the framework of their cooperation agreement. Other tests include clustered virtual servers, network-attached storage and real-time video conferencing applications. Of specific interest is the quality of service delivered under high load. The storage infrastructure for these tests is generously provided by DataDirect Networks (DDN).

"With the increasing research focus on engineering in Freiberg, High Performance Computing is a key technology for us. In addition to our own systems we are strengthening our collaboration with ZIH. This testbed allows us to develop and evaluate future concepts of High Performance

Computing usage in Saxony", says Dr. Andreas Kluge, director of the computer center at TU Bergakademie Freiberg.

Leveraging Alcatel-Lucent's High Leverage Network™ (HLN) architecture, this project is the industry's first deployment of a network that illustrates the benefits of a seamless interaction between optical transport systems and IP Service routers using 100G links. The unique combination offers improvements in overall network scaling from today's 10G and 40G to 100G, total cost of ownership, power consumption and operational simplification, which are key drivers for Alcatel-Lucent's Converged Backbone Transformation (CBT) solution. Core elements of the 100G solution deployed between the technical universities of Dresden and Bergakademie Freiberg are the Alcatel-Lucent [1830 Photonic Service Switch](#), featuring 100G next-generation coherent technology, and the Alcatel-Lucent [7750 Service Router](#) with 100G Ethernet interfaces.

"Research data centers, with their exceptional computing power and bandwidth demands, are excellent early adopters for this technological innovation", says Adolfo Hernandez, President of Alcatel-Lucent EMEA. "With Alcatel-Lucent's considerable experience in IP routing and optical technologies, and the timely availability of their commercial offerings, we are uniquely positioned to provide 100G across the IP and optical network for seamless, end-to-end high performance, even for the most advanced collaborative and cloud-based applications currently being developed."

About Alcatel-Lucent's [High Leverage Network™](#)

The Alcatel-Lucent High Leverage Network™ (HLN) architecture addresses the dual challenges of simultaneously scaling and managing network capacity to meet increasing bandwidth demand while delivering differentiated, revenue generating services. It achieves this by delivering scalable bandwidth at the lowest cost per bit and by embedding intelligence in the network to enable dynamic service creation and delivery. The foundation for the Alcatel-Lucent [Application Enablement](#) vision, the HLN architecture collapses multiple complex costly overlay networks into a simpler, fully optimized network that leverages technical innovations and embraces existing environments.

For more information about Alcatel-Lucent's High Leverage Network™ (HLN) architecture, please visit: www.alcatel-lucent.com/hln

About T-Systems

Drawing on a global infrastructure of data centers and networks, T-Systems operates information and communication technology (ICT) systems for multinational corporations and public sector institutions. T-Systems provides integrated solutions for the networked future of business and society. The company's some employees combine industry expertise and ICT innovations to add significant value to customers' core business all over the world. T-Systems generated revenue of around EUR 8.8 billion in the 2009 financial year.

<http://www.t-systems.com>

About Technische Universität Dresden / Center for Information Services and High Performance Computing (ZIH)

With 35.000 students, 4.200 permanent employees, and more than 400 professors TU Dresden is the largest university in Saxony. In the first stage of the German Excellence Initiative, TU Dresden has been the only university in East Germany which has been approved of a graduate school and a cluster of excellence. The faculty of computer science of TU Dresden is one of the largest in Germany. The ZIH is a central scientific unit of TU Dresden with research activities in a broad spectrum. The infrastructure of ZIH, which has its focus on data-intensive computing, is provided to all scientific users in Saxony.

<http://tu-dresden.de/zih>

About Technische Universität Bergakademie Freiberg

With its four core themes – Geosciences, Materials, Energy and Environment – it has a very distinct profile addressing the specific issues of our modern industrial nation. This profile guarantees a high-level education in the fields of Science, Engineering and Economics. TU Bergakademie Freiberg's 5000 students certify its top position in the nation-wide rankings again and again. It is also among the strongest external funding universities. The campus offers numerous advantages of a small university.

<http://tu-freiberg.de>

About DataDirect Networks (DDN)

Datadirect Networks is the world leading provider of high capacity and high bandwidth scalable storage solutions for high Performance, Grid and Cloud Computing. For more information, go to www.datadirectnet.com.

About Indiana University:

Pervasive Technology Institute (PTI) at Indiana University is a world-class organization dedicated to the development and delivery of innovative information technology to advance research, education, industry, and society. Supported in part by a \$15 million grant from the Lilly Endowment, Inc., PTI is built upon a spirit of collaboration and brings together researchers and technologists from a range of disciplines and organizations, including the IU School of Informatics and Computing at Bloomington, the IU Maurer School of Law, and University Information Technology Services at Indiana University.
<http://www.indiana.edu/>

About Alcatel-Lucent

Alcatel-Lucent (Euronext Paris and NYSE: ALU) is the trusted transformation partner of service providers, enterprises, strategic industries such as defence, energy, healthcare, transportation, and governments worldwide, providing solutions to deliver voice, data and video communication services to end-users. A leader in fixed, mobile and converged broadband networking, IP and optics technologies, applications and services, Alcatel-Lucent leverages the unrivalled technical and scientific expertise of Bell Labs, one of the largest innovation powerhouses in the communications industry. With operations in more than 130 countries and the most experienced global services organization in the industry, Alcatel-Lucent is a local partner with a global reach. Alcatel-Lucent achieved revenues of Euro 15.2 billion in 2009 and is incorporated in France, with executive offices located in Paris. For more information, visit Alcatel-Lucent on the Internet: <http://www.alcatel-lucent.com>, read the latest posts on the Alcatel-Lucent blog <http://www.alcatel-lucent.com/blog> and follow us on Twitter: http://twitter.com/Alcatel_Lucent.

Alcatel-Lucent Press Contacts

Peter Benedict
Valérie La Gamba

Tel: + 33 (0)1 40 76 50 84 peter.benedict@alcatel-lucent.com
Tel: + 33 (0)1 30 77 35 91 valerie.la_gamba@alcatel-lucent.com

Alcatel-Lucent Investor Relations

Frank Maccary
Don Sweeney
Tom Bevilacqua
Tony Lucido

Tel: + 33 (0)1 40 76 12 11 frank.maccary@alcatel-lucent.com
Tel: + 1 908 582 6153 dsweeney@alcatel-lucent.com
Tel: + 1 908-582-7998 bevilacqua@alcatel-lucent.com
Tel: + 1 908 582 5722 alucido@alcatel-lucent.com