



Greywale
Management

Communiqué
Industry News



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Network Energy a Top Focus at Alcatel-Lucent Bell Labs Validates Greywale Management

Greywale Management
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INDUSTRY NEWS:

Alcatel Rejuvenates Bell Labs: Network Energy is a Top Focus

After years of corporate and industry uncertainty Alcatel is reigniting their R&D arm, Bell Labs, to tackle the challenges of future. Alcatel-Lucent CTO Marcus Weldon has identified **seven** “innovation domains”. They are:

1. Network capacity
2. Network performance
3. Network optimization
- 4. Network energy**
5. Network security (especially for virtualized applications)
6. Network applications
7. Devices (with a focus on how they connect to and interact with the network, rather than the development of end-user devices such as smartphones and tablets)

Quick Resources

1. Alcatel-Lucent Bell Labs: <http://www.alcatel-lucent.com/bell-labs>
2. Lightreading.com Article: <http://www.lightreading.com/ethernet-ip/routers/alcalu-breathes-new-life-into-bell-labs/d/d-id/707097>
3. Greentouch www.greentouch.org

KEY POINTS

- 1. Network Energy** is included
 - a.** Of all the areas where Alcatel could invest R&D dollars **network energy** was placed in the top tier.
- Alcatel considers **network energy** a natural area to focus on.
 - a.** The seven innovation domains were created to focus on the “natural areas” network operators are concerned with.
- Alcatel is aware that **network energy** issues are either top-of-mind or becoming top-of-mind boardroom issues at Service Providers around the globe.
- Alcatel has a team of “PhD”s focused on Network Energy
- Network Energy is the new name for previously referred to as “Green Research”

INDUSTRY RECOMMENDATIONS

1. For Global Service Providers

- a. Create a comprehensive energy strategy
 - i. At least get one started and start understanding the impact of energy issues (e.g., price and availability) on your business.
 - ii. Greywale Management has identified 5 (five) critical business drivers addressed by an Energy Strategy (see Appendix 2)
 - iii. Look beyond “Sustainability 101” solutions. (See Appendix 1)
 1. Yes upgrade your light bulbs and tune-up your HVAC systems, but look at energy as a long term business imperative.
- b. Support Alcatel’s Energy Research efforts and energy issues
- c. Join Greentouch

2. For Equipment Manufactures

- a. Alcatel Lucent is leading the industry in network energy issues. Start a network energy initiative to avoid getting **blindsided**.
 - i. Contact Greywale Management to keep you informed ☺
- b. If the individuals you speak directly to at SPs are not concerned with energy, talk to other individuals who are.
- c. Energy issues beyond Sustainability 101 can be a competitive advantage or weakness in the next 3 to 5 years. (See Appendix 1)

3. For Semiconductor Manufacturers

- a. In addition to relying on “Moore’s Law” look at energy efficient system partitioning at the device level and at the network system level.

4. For Consumers

- a. If you are an eco-driven consumer and have a choice in service provider select the one with the strongest “green” brand and make sure there’s a real strategy behind it and not just a marketing-driven green brush stroke.

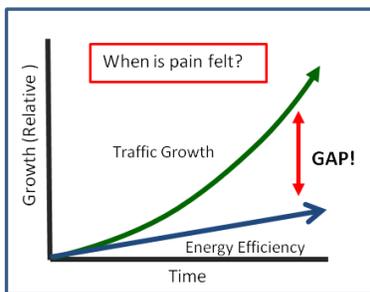


GREYWALE COMMENTARY

It is noteworthy that Alcatel-Lucent has included **network energy** as a key strategic R&D focus. The telecommunication equipment market has gone through year of turmoil. Industry leaders of past technology cycles are **gone**. Nortel – GONE, Seimens (The world leader in Class-5 switches) – Out of the Business, Lucent (AT&T Network Systems) – Acquired. Alcatel, while facing real challenges, remains a global industry leader. Given their industry presence we find it interesting that they are focused aggressively on network energy issues.

CLOSING REMARKS

Greywale Management believes that energy is becoming a strategic issue for service providers



around the globe. As illustrated in the chart to the left, the only question is “when” will the pain be felt. [This chart is based on work published by Greentouch and Alcatel.] The pain threshold will vary from region to region. Fracking has delayed the pain point in North America for the near term. However, in Europe, Asia and Africa cheap electricity, like cheap gasoline, is not a given. Alcatel-Lucent has recognized this fact and the fact that Asia and Africa represent long term growth markets. They

are committing to this with a substantial investment in R&D.

To begin discussions on addressing energy issues and start the process of creating a long term energy strategy please contact me at gwhelan@greywale.com or +978 992 2203.

APPENDIX 1

A service provider energy strategy, as defined by Greywale Management, consists of three strategic vectors. The three are independent, yet intertwined when considered as part of a comprehensive long term strategy. They are; Sustainability 101, New System and Device Architectures and New Network Architectures and Protocol.

Definitions: Solutions (1)

Sustainability 101

This refers to the well documented array of technologies and procedures in the market today that are being adopted across the globe. It can be as basic as installing better light bulbs and tuning up the HVAC system in all facilities, including retail stores. Or it could be installing a renewable energy source (e.g., solar or wind) to augment existing power to the facilities. The main point is that current solutions can be adopted “as-is” without any material changes that would be service provider specific. In the future, telecom specific solutions that address the unique needs of networks may be developed.

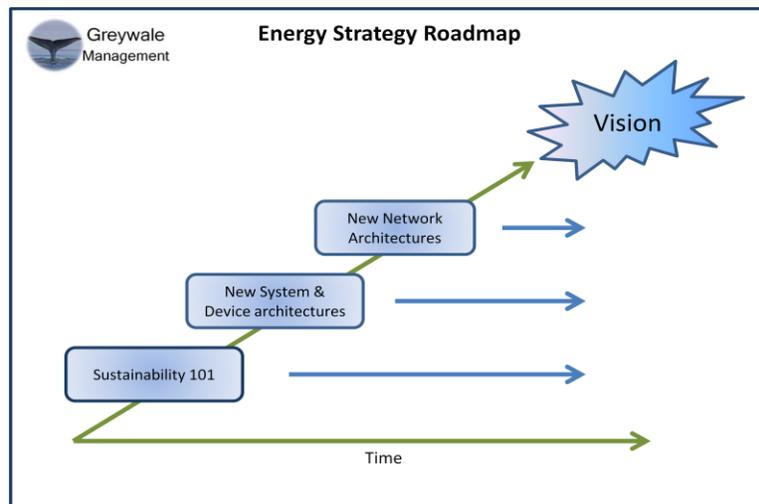
New Systems and Device Architectures

Networks are comprised on numerous types of equipment and the equipment is comprised of numerous semiconductor devices. New energy-aware and more efficient devices and systems will be developed as part of normal upgrades and enhancements. Energy savings with new equipment benefits by Moore's law by default. Moore's law states that the performance of semiconductor devices doubles every 18-24 months. Thus, SPs can deploy more energy efficient devices and equipment with zero impact on current network architectures and operations. Here, the legacy device (e.g. switch or router) can be physically removed from the network and a new one can be installed, cables connected and powered on. Existing OAM&P (Operations, Administration, Maintenance and Provisioning) and M&Ps (Methods and Procedures) will be largely unchanged.

New Network Architectures and Protocols

As energy use continues to rise network operators will look at modifying the underlying end-to-end network architecture to become more energy efficient. This could include new protocols that are energy-aware and adapt to current, or historic, energy use patterns. It could also include re-locating certain facilities closer to renewable energy sources. Unlike the first two categories this one is likely to impact network operations. For example, new facilities may be required and new energy management systems would be installed in the Network Operations Center (NOC).

Energy Strategy Roadmap



1. From the Greywale Service Provider Energy Strategy Taxonomy November 2013
 - a. <http://greywale.com/wp-content/uploads/2013/09/Greywale-SP-Energy-Taxonomy.pdf>

APPENDIX 2: Energy Strategy Business Drivers

Energy Strategy
Business Drivers

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Traffic Growth and Network Sprawl

OPEX Reduction and Operational Efficiencies

Brand Enhancement

Regulatory Preparedness



Availability, Reliability and Cost of Energy

ABOUT THE AUTHOR



Greg Whelan, Principal, Greywale Management is a leader in service provider energy strategies. He takes a pragmatic business-driven approach to energy issues affecting the global communication services provider market. He has over 20 years of international high technology marketing experience. He has worked in technical marketing roles for large technology firms including Cisco Systems (San Jose, CA) where he lead award winning global marketing campaigns in telecommunications and internet markets and Analog Devices

(Norwood, MA) where he created and lead their entrance into the broadband telecommunication market. He's also spearheaded marketing for a number of early stage venture-backed start-ups in the Boston area, three of which were acquired by larger tech companies.

He's a pioneer in the broadband telecommunications area and drove the first international DSL standards and was a co-founder, and Vice President of the International Broadband Forum. He has over two-dozen published papers and articles and has spoken at numerous conferences and forums in the US and in Europe. Today, he focuses on service provider energy strategy technologies, issues and trends. He a contributor to the SCTE Adaptive Power System Interface Specification and advises both corporations and entrepreneurial start-ups in strategic marketing, messaging, value chain participation and marketing material development.

He has a BS Electrical Engineering from Cornell University and a High Technology MBA, with honors from Northeastern University. He has also studied Digital Video Networking at the MIT MediaLab.

ABOUT GREYWALE MANAGEMENT

Greywale Management is an international consulting firm focusing on service provider energy strategy. It provides strategic marketing, market research and business development services for service providers, equipment vendors, energy solution providers and semiconductor vendors.

It focuses on managing innovations in both large organizations and startup companies.
www.greywale.com

ABOUT GREYWALE COMMUNIQUES

Greywale Communiqués give you timely analysis of industry news and issues related to energy issues affecting network operators across the globe. They provide terse salient summaries, key points to consider and tangible recommendations for participants across the ecosystem.

To ensure you get them in a timely manner please send an email to gwhelan@greywale.com with “communiqué” in the subject line

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