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Video Networks
Internet of Things

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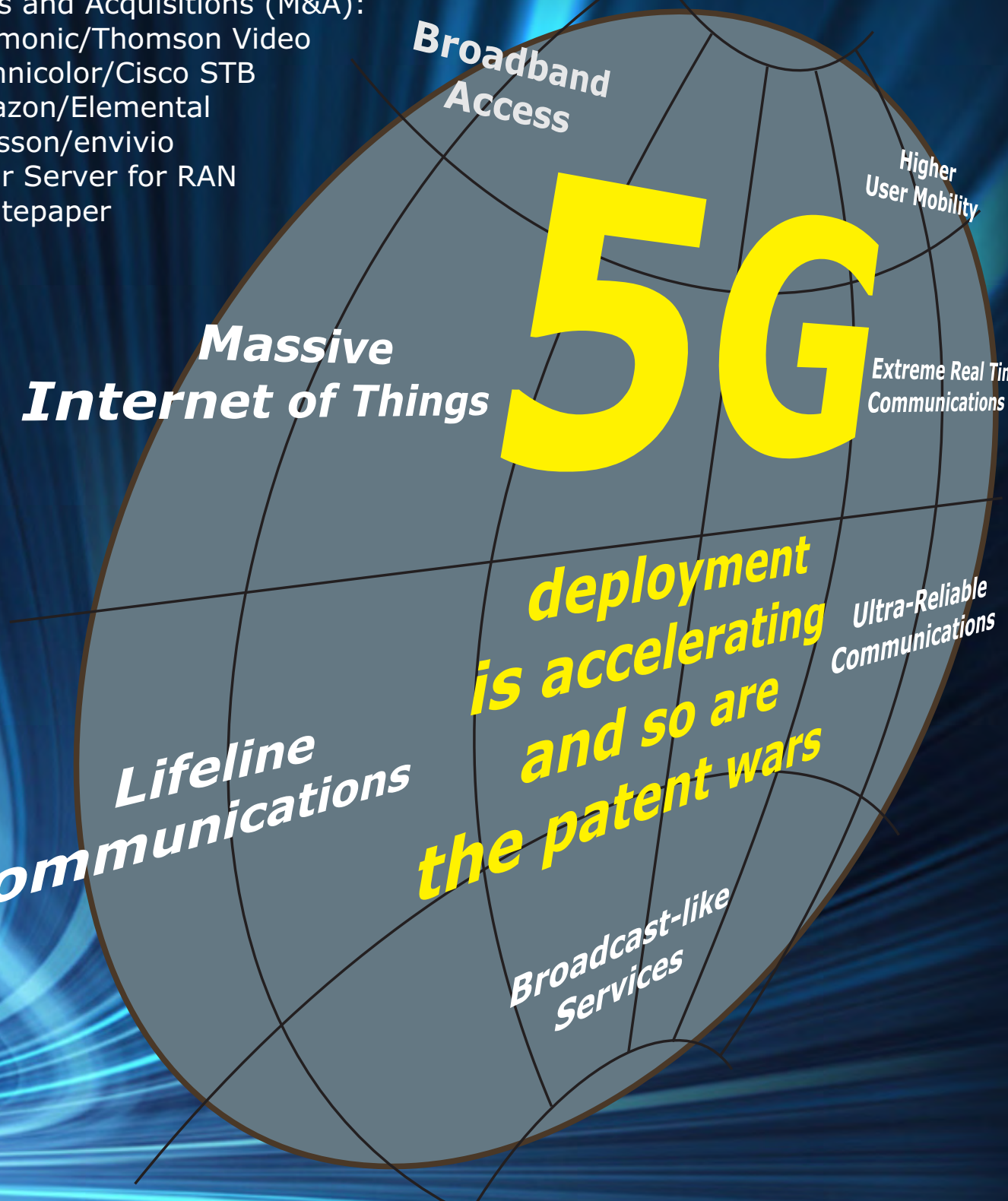
In this Edition



Products & Technology from Silicon to Application-ready Platforms

5G deployment is accelerating; so are the patent wars

Interview: Ariela Zeira, Ph.D. - Owner, East Neck Wireless

The time-frame for commercial deployment of 5G is accelerating. Commercial 5G services were initially predicted for no sooner than 2020. Recently, several operators announced deployment of some 5G services as early as 2018. These includes **TeliaSonera** in collaboration with **Ericsson** and **Korean Telecomm**. In addition, **Verizon** announced last September that it will conduct 5G field trials this year. The 5G standardization is, however, at an early stage. To accommodate the accelerated schedule **3GPP** has announced a phased standardization of 5G with the first phase included in Release 15. These early deployments will likely follow Release 15.

At the same time companies are trying to position themselves for the imminent 5G patent wars.

Here are just a few examples:

• **Huawei**, the world's second-largest maker of network equipment, is increasing its investment in 5G wireless research and beefing up its patent portfolio. Huawei's CEO, Ken Hu, announced that the company's spending on 5G would rise beyond the previously committed $US600 million for the time period 2013-2018.

• **Apple** and **Ericsson** signed a global patent agreement to end litigation and work together on 5G technology.

• Some believe that **Nokia**'s decision to purchase **Alcatel-Lucent** was driven by Alcatel-Lucent's 5G patents.

The Next Generation Mobile Networks « NGMN Alliance », a forum of mobile operators, vendors, manufacturers and research institutes published in 2015 the NGMN 5G white paper that defines key use cases and their resulting requirements. The use cases have been grouped by the following families,

- Broadband Access
- Higher User Mobility
- Massive Internet of Things (IoT)
- Extreme Real Time Communications
- Lifeline Communications
- Ultra-Reliable Communications
- Broadcast-like Services

The white paper also identifies the technology building blocks needed to enable these use cases. This is of course a preliminary list of technology building blocks and others could be identified later on.

About Ariela
For more than 15 years (InterDigital Communications) I have been at the forefront of research in wireless communications and have authored/co-authored more than 170 patents in this area. I am now focusing on 5G and would like to share my insights on the 5G patent landscape with you.

We are planning a series of posts, each of them will focus on insights gained from patents into one of the 5G use cases or technology building blocks. The first post in this series will focus on Extreme Real Time Communications and in particular on Ultra Low Latency Networks.

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- Telecom Infrastructures
- Cloud
- Data Centers
- Video Networks/Broadcast
- IoT & M2M

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Industry's First High Performance Mobile Edge Computing Platform

Designed for Extreme Environments
and Outdoor Telecom/Networking

SETO-1000
Intel® Xeon® Processor E5-2400 v2 Series

There are over 5 million cell towers globally.

By adding Edge Cloud Servers, operators can save up to 35%

on backhaul usage from the Radio Access Network to the existing application server.

By 2018, it is estimated that 84% of all IP traffic in the US will be made up of gaming, video and streaming web content, with users demanding low latency and improved QoE. With Edge Cloud Architectures, it is estimated that latency will be reduced by 50%.
ADLINK's SETO-1000 is a specialized server designed for extreme, harsh outdoor environments. This SETO-1000 is a one of a kind compute device powered by two of the latest Intel® Xeon® E5 processors. It supports up to 96Gb of memory, features multiple I/O options and dual swappable SATA storage bays.

The SETO-1000 provides a powerful common platform architecture for virtualized Radio Access Equipment for 2G, 3G and LTE. It enables consolidated security, remote management, open applications and reduction of hardware footprint.

Designed for Harsh Environments

- -40°C to 55°C operation
- NEBS shock & vibration (design))
- IP65 intrusion protection

Server Grade Performance

- Dual 10-core Xeon® E5-2400 v2
- 6x DDR3L RDIMM sockets
- Dual 10G SFP+ optical ports
- Dual GbE RJ-45 ports
- Intel® Communications Chipset 8920 crypto engine
- Dual swappable SATA storage bays
- IPMI 2.0 management interface
- 48VDC nominal input

Operators can utilize the SETO-1000 to implement a virtualized Cloud Radio Access Network by integrating 2G, 3G and LTE RAN gear onto a virtualized cloud server. This enables the reduction of proprietary build gear by utilizing an ETSI standardized MEC server, saving both OPEX and CAPEX for the operator. The SETO-1000 provides a powerful common platform architecture for virtualized Radio Access Equipment and enables consolidated security, remote management, open applications and reduction of hardware footprint.

4 Important M&A's in the Video Broadcast Market (page 4 & 5)

Harmonic Completes Acquisition of Thomson Video Networks

Date: Monday, February 29, 2016

Harmonic (NASDAQ: HLIT), the worldwide leader in video delivery infrastructure, today announced that it has completed the acquisition of Thomson Video Networks (TVN), a global leader in advanced video compression solutions.

"We are pleased to announce the closing of the TVN acquisition," said Patrick Harshman, President and CEO of Harmonic. "By bringing together two powerhouses in the video industry, we further extend our position as the market leader. With expanded global R&D, sales and support teams, we are accelerating innovation and driving delivery of best-in-class solutions, products, capabilities and support services for our customers."

Further information about Harmonic and the company's products is available at www.harmonicinc.com

About Harmonic

Harmonic (NASDAQ: HLIT) is the worldwide leader in video delivery infrastructure for emerging television and video services. Harmonic enables customers to produce, deliver and monetize amazing video experiences, with unequalled business agility and operational efficiency, by providing market-leading innovation, high-quality service and compelling total cost of ownership. More information is available at www.harmonicinc.com.
See more at: http://www.harmonicinc.com/news/harmonic-completes-acquisition-thomson-video-networks#sthash.eqNOyAk3.dpuf

Technicolor completes the acquisition of Cisco Connected Devices

Paris (France), 20 November 2015 – Technicolor (Euronext Paris: TCH; OTCQX: TCLRY) has completed the acquisition announced on 23 July 2015 of Cisco Connected Devices, the Cisco (NASDAQ: CSCO) customer premises equipment ("CPE") business for $600 million (or €561 million[1] equivalent) in a stock and cash transaction. In parallel, Technicolor is entering into a strategic collaboration agreement with Cisco that will allow both companies to develop and deliver next generation video and broadband technologies, with cooperation on Internet of Things ("IoT") solutions and services.

Cisco has received $450 million (€421 million) in cash financed by the successful rights offering that Technicolor closed on 17 November and new debt raised in October. Cisco has also received 21,418,140 newly issued Technicolor shares or an amount equivalent to $150 million at the time of the agreement. As a result, Cisco holds 5.2% of Technicolor's share capital, of which 16,795,834 shares are subject to an 18-month lock-up and 4,622,306 shares to a 12-month lock-up. Hilton Romanski, the Chief Strategy Officer of Cisco, is appointed to Technicolor's Board of Directors, effective immediately.

The transaction and addition of Cisco's complementary product portfolio immediately increases the Company's industrial and technological scale in all major geographies and will create the following result for Technicolor's Connected Home segment:

- An Adjusted EBITDA in excess of €200 million by year end 2016;
- Best-in-class profitability (i.e.8-9% Adjusted EBITDA margin) by 2017;
- Synergies generation in excess of €100 million per annum with a run-rate level to be reached by 2018.

The integration of the Cisco Connected Devices assets is starting immediately and the strategic collaboration agreement between Technicolor and Cisco is now moving into the implementation stage.

The transaction has closed in all operating geographies, with the exception of Brazil where closing remains subject to local approvals, and Colombia where Cisco Connected Devices' operations have been carved-out pending a decision by the antitrust authority.

About Technicolor

Technicolor, a worldwide technology leader in the media and entertainment sector, is at the forefront of digital innovation. Our world class research and innovation laboratories enable us to lead the market in delivering advanced video services to content creators and distributors. We also benefit from an extensive intellectual property portfolio focused on imaging and sound technologies. Our commitment: supporting the delivery of exciting new experiences for consumers in theaters, homes and on-the-go.
More: www.technicolor.com

4 Important M&A's in the Video Broadcast Market (page 4 & 5)

Ericsson completes acquisition of Envivio

Oct. 27, 2015

- Deal represents a strategic addition to Ericsson's video compression portfolio with combination of software and hardware encoding
- Merger follows the successful completion of the tender offer by Ericsson for all shares in Envivio for the price of USD 4.10 per share
- Envivio shares will be delisted from the NASDAQ Global Select Market

Ericsson (NASDAQ: ERIC) today announces the completion of the acquisition of Envivio, Inc. (NASDAQ: ENVI). The transaction was completed through a merger of its indirect wholly-owned subsidiary, Cindy Acquisition Corporation, with and into Envivio, Inc. (NASDAQ: ENVI). Envivio, Inc. survives the merger as a wholly-owned subsidiary of Ericsson.

The merger follows the successful completion of the tender offer by Ericsson for all shares in Envivio for the price of USD 4.10 per share. As of expiration of the tender offer, 26,385,322 shares (including 58,467 shares pursuant to guaranteed delivery procedures) were validly tendered and not withdrawn in the tender offer, representing in excess of 93 percent of Envivio's issued and outstanding shares. All validly tendered shares have been accepted for payment in accordance with the terms of the tender offer.

As a result of the merger, any Envivio shares not tendered in the tender offer have been converted into the right to receive USD 4.10 per share. In addition, options to purchase Envivio shares have been converted into the right to receive a cash payment equal to their net exercise value, based on the USD 4.10 per share merger consideration.

Notwithstanding the completion of the merger, Ericsson will pay for shares tendered via guaranteed delivery procedures promptly after delivery of those shares.

Envivio is a global leader in software-based video encoding with an installed base of over 400 TV service providers and content-owner customers in all markets globally. The deal will strengthen Ericsson's position as a leader and global innovator in TV and media. It will enable Ericsson's customers to deploy new technologies and agile video processing, and to develop innovative new services that engage TV consumers every day.

Amazon Web Services « AWS » to Acquire Elemental

SEATTLE – Sept. 3, 2015 — (NASDAQ:AMZN) — Amazon Web Services, Inc. (AWS), an Amazon company, today announced that Amazon has reached an agreement to acquire Elemental Technologies, Inc., pioneers in software-defined video solutions for multiscreen content delivery. The acquisition brings together Elemental's leading video solutions with the AWS Cloud platform to provide media and entertainment companies with a range of integrated solutions to efficiently and economically scale video infrastructures as the media industry increasingly moves to internet based delivery.

Elemental software makes it easy for media and entertainment companies to take live and on-demand video destined for traditional networks like cable, satellite, or over-the-air broadcast and re-format that content for distribution to PCs and smart phones, tablets, and TVs. Elemental has more than 700 media franchise customers and powers some of the world's most popular over-the-top TV (OTT) applications, like the BBC's iPlayer, CNNGo, ESPN Score Center, HBO Go, MSNBC Shift, and Sky Go & Sky Now. Additionally, Elemental is supporting the world's first 4K Ultra HD services including those that were delivered by the BBC during the 2014 World Cup.

"Elemental shares Amazon's passion for invention and putting the customer first," said Andy Jassy, Senior Vice President of Amazon Web Services. "Together, we'll collaborate on deeper technology integrations and new infrastructure offerings so that media and entertainment companies can evolve their hybrid and cloud models as they continue to innovate their services for viewers."

Founded in 2006 and headquartered in Portland, Oregon, Elemental will continue to operate its business under its existing brand, delivering the full range of solutions for pay TV operators, content programmers, broadcasters, governments, and enterprise customers. Elemental will also expand the integration of its offerings with AWS, and through close collaboration with AWS, accelerate the innovation of next-generation services that feature a range of solutions for customers leveraging on-premises assets, hybrid architectures, and cloud.

"The media and entertainment industry is at a unique inflection point, and as a part of Amazon, we will be in an even stronger position to help our customers delight their viewers globally," said Sam Blackman, co-founder and CEO of Elemental. "We're thrilled to have Amazon supporting our growth and ongoing commitment to our customers' success." To learn more about AWS, visit http://aws.amazon.com

Reliance Jio Infocomm Limited Key Developments Building New Partnering Operator Alliance

Mobile TeleSystems PJSC, BT, Deutsche Telekom, Reliance Jio Infocomm Limited, Millicom, Orange, Rogers, Teliasonera and Tim Joined Forces to Build New Partnering Operator Alliance

Feb 15, 2016

Mobile TeleSystems PJSC announced that MTS, BT, Deutsche Telekom, Reliance Jio Infocomm Limited, Millicom, Orange, Rogers, TeliaSonera and TIM have joined forces to build a new Partnering Operator Alliance that will allow partner businesses to more efficiently and quickly bring innovative products and services to customers around the world.

These companies can reach a potential customer base of around one billion customers in more than 80 countries around the world.

The Alliance focuses on exchanging best practices on how to bring partner propositions to the market, on joint efforts in partner scouting and will also exchange knowledge about upcoming trends and services amongst the group.

The alliance is an open network of like-minded operators worldwide with complementary geographical footprints. It is covering all relevant product categories within an operator's business, mobile as well as fixed, B2C as well as B2B. The Alliance will be expanding to additional operators soon.

More: http://www.ril.com/OurBusinesses/Jio.aspx

ADLINK Technology Showcasing Latest High Performance Networking & Communications Platforms at RSA 2016

Demonstrations feature network security appliance, media cloud server and extreme outdoor server bringing data center performance to the edge

SAN JOSE, CA – February 23, 2016 – ADLINK Technology, a leading global provider of cloud-based services, intelligent gateways and embedded building blocks for edge devices that enable the Internet of Things (IoT), invites attendees to view our latest network security, media cloud server and mobile edge computing (MEC) platforms in Booth N4410 at RSA 2016, Feb. 29 – Mar. 4, at Moscone Center in San Francisco, CA.

ADLINK's CSA Series of 1U/2U rackmount network security appliances support ADLINK's networking software package, PacketManager, which is ideal for use in unified threat management (UTM), next-generation firewall (NGFW), deep packet inspection (DPI) and other network security applications. The CSA network security appliance provides up to 11x faster Layer 3 forwarding performance and 4x faster DPI performance compared to that of native Linux.

ADLINK's Media Cloud Server (MCS) series is the first dedicated media server on the market with built-in media processing management software, offering 6x the performance of pure software transcoding solutions and reserving more than 80% of CPU capacity for customer applications. The MCS product line targets video applications such as surveillance with video analytics, video conferencing used in remote education & healthcare environments and IPTV content delivery networks (CDNs) as a transcoding server.

ADLINK will also be showing our SETO-1000 extreme outdoor server, the first high-performance MEC platform specifically designed for extreme environments and outdoor telecom/networking applications to enable Telecom Equipment Manufacturers (TEMs) and application providers to deliver data center performance at the edge of the network.

For more information on ADLINK's networking and communications offerings http://www.adlinktech.com

For more information on RSA 2016 or to register for an expo pass, please visit
http://www.rsaconference.com/events/us16/register

FREE: Register to Attend (Limited) - Click Here
Use Code: XEADLINK16

Subsea cables not just about capacity

Anthony McLachlan/Ciena - December 11, 2015

End 2015: 150,000 km of intra-Asia submarine cables representing over $9 billion of capital investment by cable owners

Must focus on investment priorities

In the context of increasing demand and falling prices, cable owners and operators must focus their investment priorities in order to differentiate and maximize profitability.

First, to increase capacity usage, cable owners and service providers need to achieve higher lit capacity, and higher ultimate capacity from their existing and new submarine cables.

On average, cable systems across the globe have used less than 20% of their ultimate capacity, so upgrading networks with the latest submarine line terminal equipment (SLTE) can yield greater return for operators who are facing price pressure. SLTE typically represents less than 10% of the cost of capacity, and can reduce operations and maintenance costs.

Second, amid pressure to decrease operating and maintenance costs GeoMesh networking technology simplifies the PoP-to-PoP transport layer through coherent transmission and ROADM-based optical bypass for new as well existing cable systems.

The latest technological advancements also promise additions beyond the initial design capacity, even for the newest systems. GeoMesh network solutions use SLTE technology helping operators save on equipment costs, power consumption, O&M costs, and more.

Third, Asia is more dynamic than it has ever been, with new technology start-ups and web-scale business concepts emerging on an almost daily basis. Asian cities such as Singapore and Seoul are also at the forefront of smart city developments.

In this context it is near-impossible to predict new market requirements and network technologies must be flexible and highly programmable, to enable quick response. Using a common flexible programmable common hardware for all applications is the ideal solution. Today's SLTE technologies can extract value from the wet plant, and significantly increase its revenue and profit potential.

And fourth, there have been in recent years some significant instances of submarine cables being damaged due to man-made and natural causes that resulted in wide-scale regional network degradation and outages — the widespread outages that were triggered by damage to cables off Taiwan, Japan and the Middle East had an economic impact of millions of dollars.

As web-scale businesses proliferate and more businesses take to cloud services these wide-scale network outages will not be tolerated. Cable operators must invest in optical transport network technologies and intelligent mesh networking to create efficient and resilient submarine networks with the capability to intelligently reroute around multiple network failures.

By the end of 2015, there will be 150,000 km of intra-Asia submarine cables representing over $9 billion of capital investment by cable owners. With demand for capacity rapidly increasing, but prices falling, it is essential for Asian operators to be able to extract the best value from their intra-Asian submarine cable routes to increase profitability and avoid commoditization.

More: see at telecomasia.net Click here

Key Events

Infoblox Introduces the First Streaming DNS Threat Analytics to Prevent Data Exfiltration in Real Time

Behavioral analytics applied to DNS traffic helps enterprises and service providers prevent data theft

Monday, December 7, 2015 — Infoblox Inc. (NYSE:BLOX), the network control company, today introduced Infoblox DNS Threat Analytics, the first technology that applies behavioral analytics to DNS queries in real time to detect and actively block data exfiltration attempts using DNS as a communications pathway. Stealing proprietary information through DNS has recently become commonplace among cybercriminals, and Infoblox is uniquely positioned to help block loss of valuable data.

This growing problem is creating concern among enterprises and service providers:
Nearly half (46 percent) of large businesses have experienced DNS-based data exfiltration and 45 percent experienced DNS tunneling in the previous year, according to a December 2014 survey.1
According to a 2015 report, the average total cost of a data breach to an enterprise is $3.8 million, including forensic efforts, resolution, and the consequences of customer defection.2
A data breach at a major U.S. health insurance company reported earlier this year could ultimately cost the firm more than $100 million.3

As the leader in enterprise-grade DNS technology, Infoblox is making significant investments in building technologies to help secure DNS. Infoblox DNS Threat Analytics further enables enterprises and service providers to protect their DNS infrastructure and leverage DNS as a control point to defeat cybercrime. Infoblox is the first to offer a DNS server with built-in behavioral analytics to address DNS-based threats.

Domain Name System (DNS) queries are typically small packets of data that make a simple request: translating a domain name such as www.infoblox.com into an Internet Protocol (IP) address such as 54.235.223.101 that computers and endpoints understand. However, cybercriminals have learned to exploit DNS to smuggle out an organization's data—including highly sensitive information such as trade secrets and customer credit card numbers.

Infoblox DNS Threat Analytics examines outgoing DNS traffic for characteristics that are associated with data exfiltration attacks in real time. These characteristics include:
Size: The query is larger than normal, or contains more information than normal.
Encryption: The query contains encrypted data.
Timing: The query is being repeated at precise intervals, unlike the intermittent DNS requests initiated by humans.

Traditional reputation-based and signature-based security—already built into Infoblox DNS security appliances—can already block known threats that have been identified by threat intelligence researchers. Infoblox DNS Threat Analytics goes a step further with its ability to automatically block so-called zero-day threats—attacks that haven't yet been discovered—after analyzing DNS queries and spotting suspicious behavior. There's no need to install additional software on end-user devices or to deploy additional devices in the data center. Infoblox DNS Threat Analytics can scale to provide enforcement across the network and provide visibility into infected devices or rogue employees trying to steal data. Infoblox can also notify other security systems when threats are detected, accelerating remediation.

"For the Golden Nugget, data security is paramount to our success as a business," said Shannon Provence, executive director of IT at Golden Nugget Hotel & Casino in Las Vegas. "We see value in Infoblox DNS Threat Analytics because it provides real-time streaming analytics on DNS queries. In our recent evaluation, the analytics helped us identify threat patterns that were otherwise hard to detect using alternate solutions. Infoblox DNS Threat Analytics gave us more visibility than we ever had before and allowed us to quickly identify, evaluate, and block suspicious DNS-based activity before it became an issue or caused data loss."

The unique real-time analysis and detection capability in Infoblox DNS Threat Analytics works as queries are being processed. This is essential to fast identification of indicators of compromise (IOC). Other off-line approaches such as gathering mountains of log data and analyzing these files after the fact can take weeks to months—which is unacceptable in todays' high-stakes security environments.

"Most firewalls and other security solutions don't examine or understand the structure of DNS queries, a vulnerability that hasn't escaped the attention of cybercriminals," said Scott Fulton, executive vice president of products at Infoblox. "Infoblox DNS Threat Analytics continues our leadership in delivering innovations in DNS security and helps our customers close the door on DNS as a channel for data theft."

- **White paper:** Data Exfiltration and DNS Click Here
- **Datasheet:** Infoblox DNS Threat Analytics Click Here
- **Solution note:** Infoblox DNS Threat Analytics Click Here
- **Video:** Infoblox DNS Threat Analytics Click Here

About Infoblox
Infoblox (NYSE:BLOX) delivers critical network services that protect Domain Name System (DNS) infrastructure, automate cloud deployments, and increase the reliability of enterprise and service provider networks around the world. As the industry leader in DNS, DHCP, and IP address management, the category known as DDI, Infoblox (www.infoblox.com) reduces the risk and complexity of networking.