IDC

Analyze the Future

Juniper Networks: Proving the Business Value of Network Transformation

Business Value Highlights

Average annual benefits (per 100 users):

€14,716

Reduction in cost of networking:

33%

Annual business productivity benefits (per 100 users):

€5,164

Reduction in downtime:

86%

Five-Year ROI:

349%

Payback period:

8.6 months

IDC OPINION

The constant growth of cloud, IoT, virtualization, mobility, and digital transformation has brought tectonic changes to the world of networking. Long viewed as a bastion of single-purpose, inflexible, and closed solutions, networks have started to transform in line with the demands for flexibility, scalability, ease of management, interoperability, and application support. Networking departments need to achieve all of the tasks above while keeping costs under control. Additionally, security requirements for the new network are not letting up — quite the opposite, as the virtualized network (and general IT) environment requires rethinking, virtualization, and evolution of security architectures.

From a management standpoint, the criticality of the network means that the operations networking staff duties need to be much less focused on performing basic tasks required to keep the lights on. Instead, there is a growing need for network management to become more sophisticated while focusing on enhancing application performance, improving interoperability, and supporting novel approaches to security.

Juniper Networks' technology development is focused on responding to the challenges of contemporary networking deployments by implementing three main technology approaches:

» Introduction of flattened network architectures, optimized for improved performance in north-south and east-west directions

» Robust and versatile implementation of SDN via its Contrail SDN controller, or support for overlay technologies such as VMware NSX and OpenStack's Neutron

» Strong support for open networking and network appliance disaggregation, giving customers the option of combining Juniper hardware with other network operating systems

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In addition, Juniper has maintained a strong pace of introducing virtualization into its portfolio, primarily by virtualizing router and security functions, and supporting NFV for its service provider customers. In management and operations, Juniper promotes efficient management interfaces and a unified network operating system.

To quantify the business value of Juniper Networks' switching, routing, and security solutions, IDC interviewed nine customers in Western Europe. The average return on investment (ROI) for Juniper's solutions for the customers that were interviewed was 349% over five years, with an average payback period of 8.6 months from deployment. Business benefits were realized in four main areas: infrastructure, network administration and management, IT user productivity, and overall business productivity.

To put this into context, IT hardware investments commonly provide payback in 9 to 12 months. Payback in 6 to 9 months is normally considered to be very rapid, so the 8.6-month payback for Juniper Networks in this study should be considered an exceptional performance.

Network managers who were interviewed, both in service provider and enterprise clients, were able to provision faster, resulting in better response times to customer and business requests, and spent less time keeping the lights on, allowing more time for proactive initiatives that take the company's business forward. IDC also found that networking performance and reliability was considerably improved, and network management was significantly optimized for those interviewed.

This shows, in IDC's view, that high-performance, virtualized, and open networking and security solutions, such as those provided by Juniper Networks, are a financially prudent investment for companies looking to transform their network and security infrastructure to better support their business requirements. Interview participants also generally found that Juniper's solutions allow the networking staff to change the focus of their work from maintaining day-to-day operations to spending more time on supporting clients, users, or business-critical applications.

> The 8.6-month payback for Juniper Networks should be considered an exceptional performance.

IN THIS WHITE PAPER

This IDC White Paper sets out a business value assessment of Juniper Networks' portfolio in IP networking (Ethernet switches and routers) and security (firewalls and other security appliances) in the context of IDC research into the priorities and challenges faced by network managers predominantly in datacenter environments.

The study is based on nine interviews with Juniper Networks' product users, using one or more type of products from Juniper Networks' networking and security portfolio. IDC is therefore able to demonstrate and quantify the business value provided by Juniper Networks in datacenter networks and security solutions. IDC used the following three-step method to conduct its ROI analysis:

1. **Gather quantitative benefit and cost information during the interviews using a before-and-after assessment.** In this study, the benefits included staff time savings and productivity gains, user productivity increases, increased revenue, and network-related cost reductions.
2. **Create a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Juniper's networking solutions, and can include additional costs such as migrations, planning, consulting, configuration or maintenance, and staff or user training.
3. **Calculate the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for these organizations' use of Juniper networking solutions over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

SITUATION OVERVIEW

Overview of Networking Demands and Challenges

The 3rd Platform is enabled by mobile broadband, social media, Big Data, and cloud services. 3rd Platform demands are transforming enterprise network requirements.
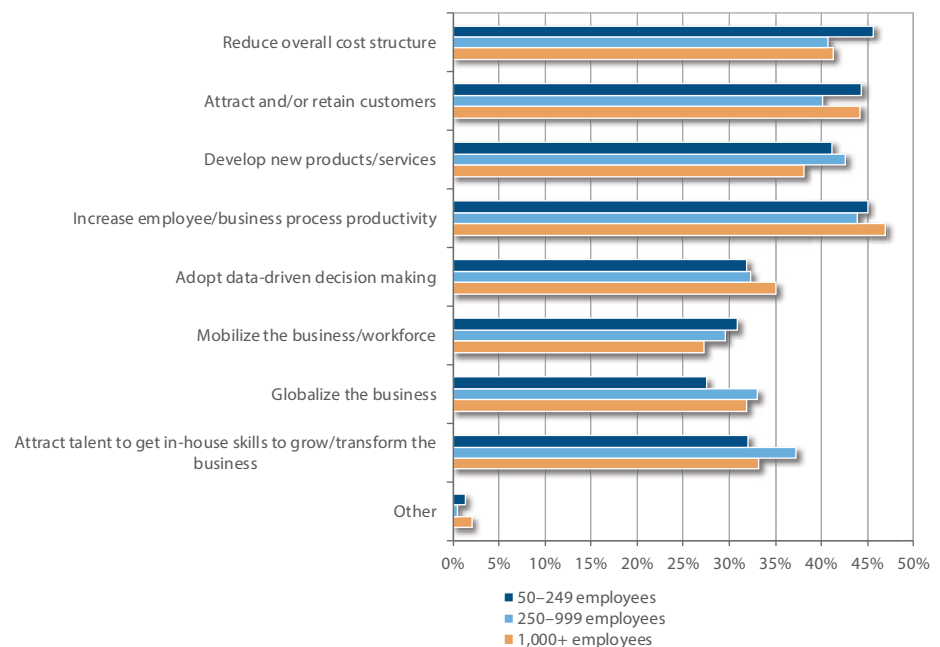
The era of the 3rd Platform has brought about a number of changes and challenges to the way enterprise networks operate. The quick growth in the number of mobile computing devices, the digital transformation of the enterprise, and the growing use of cloud applications have changed the way users access enterprise resources and networks. Shipments of smart connected devices, including all types of user devices that access the network, are expected to grow globally at a 3.6% CAGR through to 2020. A majority of these devices are mobile already. Usage patterns in all types of networks are swiftly shifting to "wireless first," further complicating capacity planning. On the other side, the growing number of business applications and the use of public, hybrid, and private cloud are leading to increasing pressure to transform datacenter operations and infrastructure. One measure of the growing importance of cloud for enterprise is the growth of the public and private cloud

market — worldwide public cloud revenues are expected to more than double in the next five years, reaching $195.2 billion in 2020. Hosted private cloud services are expected to grow at a CAGR of 35.4%, reaching worldwide revenue of $40.6 billion in 2019.

Also, with the Internet of Things (IoT) ecosystem expanding and the number of connected devices forecast to reach 30.4 billion globally by 2020, the traffic patterns, capacity requirements, and security demands are all changing at an accelerated pace. Securing the networks, in particular, is becoming more vital than ever. The use of wireless in enterprise environments increases the enterprise network target profile by exposing the infrastructure to a number of potential threats. BYOD reduces enterprise control over devices accessing the networks, and IoT exacerbates the issue as most IoT devices are designed to rely on network security rather than being inherently secure themselves. Cloud services blur the demarcation lines between enterprise, private cloud, hosted cloud, and service provider infrastructure, thus increasing the need for isolation of individual workloads rather than physical infrastructure domains. This can only be achieved by virtualizing the security as well as the network itself. The enterprise networks are thus becoming more critical than ever, and ensuring that the networks can meet the demands of the changing ICT and business landscape should be a top priority for network and ICT managers.

Western European enterprises want their networks to provide better business support with increased efficiency and lower costs.

FIGURE 1

Western European Enterprise Network Investment Priorities, 2016

Source: IDC, 2016

From Figure 1 it is clear that the network investment imperatives in Western Europe can be defined in one sentence — provide better business support with increased efficiency and lower costs. To achieve these goals, network and security infrastructures need to achieve significant improvements along the following axes of change:

» **Flexibility and agility.** One of the major challenges in traditional networking environments has been making changes to the network. This has traditionally been a lengthy exercise, usually performed manually by a specialized team of networking engineers. Nowadays, expectations that drive networking are much more different — changes need to be implemented quickly, preferably automatically in line with the demands of applications traversing the network. Similarly, introducing new services to the network should also be automated and accelerated.

» **Openness.** Networks are probably the only sector of a contemporary ICT environment where tight coupling of operating system and hardware is undisputedly mainstream, and vendor lock-in is a major issue. Becoming more open, networks will benefit from the increased pace of innovation. Likewise, decoupling of software and hardware will enable acceleration of software innovation.

» **Manageability.** Traditional network environments required highly skilled, specialized staff to support them, and even the most menial tasks needed to be performed by these highly skilled and specialized staff members. Virtualized and open networking environments enable much better management efficiency by automating most of the tasks related to day-to-day operation — enabling networking and security staff to refocus from providing basic functionality to supporting clients, users, and applications.

Overview of Juniper's Networking and Security Solutions

Juniper Networks has been focused on building carrier-grade networking solutions since it was founded 20 years ago. The extension of its portfolio to enterprise networking and security solutions followed the same principles that Juniper has adhered to in serving the service providers — high performance, interoperability, robustness, and powerful management features. The company is known for its in-house silicon development, allowing it to design networking solutions with competitive performance, tailored for its particular strong points, like its Junos network operating system and management software. With the emergence of SDN, Juniper took an active stance and has developed its own Contrail networking controller, while in parallel supporting network virtualization overlays such as VMware NSX and OpenStack Neutron. Currently, the company is actively pursuing network virtualization and NFV by virtualizing its products (virtual MX, virtual SRX) and supporting virtualization overlays in its products. Juniper has also taken a firm stance in support of open networking, launching its first OCP-based switch in late 2014.

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For enterprise networks, the main highlights of Juniper's offering are:

» **Ethernet switches:** EX Series, QFX Series, OCX 1100 open networking switch
» **Fabric architectures/systems:** Virtual Chassis Fabric (VCF), Junos Fusion, IP Fabric
» **SDN:** Contrail SDN platform, support for VMware NSX and OpenStack Neutron, NFX 250 Network Services Platform
» **Routers:** MX Series, PTX Series
» **Security:** SRX Series firewalls, Sky Advanced Threat Prevention (ATP)

For more information on Juniper's portfolio, please visit http://www.juniper.net/us/en/products-services/.

THE BUSINESS VALUE OUTCOME

Study Demographics

In spring 2016, IDC interviewed nine companies using Juniper's networking and security solutions. The organizations ranged from small companies with as few as 12 employees to large enterprises with 40,000 employees.

The organizations interviewed are based in Western Europe and include representatives from the service provider, information technology, publishing, public sector, and transportation market segments. The respondents were high-profile executives involved with network infrastructure purchasing, deployment, and operations. For midsize organizations, the positions were mainly on the CTO level (CTO, ICT infrastructure manager, head of IT infrastructure). Smaller organizations with an SP focus usually delegated their top executive (CEO, managing director). The respondents from large companies came from top management within networking departments (IT architect, lead network architect).

The interviews were designed to elicit both quantifiable information and anecdotes so that IDC could interpret the full impact of Juniper's networking and security solutions on the organization.

Table 1 offers an aggregated profile of the nine companies interviewed.

The interviews were designed to elicit quantifiable information and anecdotes to enable IDC to interpret the full impact of Juniper's networking and security solutions on the organization.

TABLE 1

Survey Demographics

	Average	Median	Range
Employees	8,200	957	12 to 40,000
IT staff	196	30	6 to 800
IT users	8,200	957	12 to 40,000
Number of business applications	1,330	20	7 to 11,000
Number of switching ports deployed	8,822	2,900	500 to 50,000
Industries	Service provider, IT, publishing, public sector, transportation		
Countries	Germany, Iceland, Ireland, the Netherlands, the United Kingdom		

Source: IDC, 2016

Selecting Juniper Networks

Most of the organizations selected Juniper's networking and security solutions because they were impressed with the flexibility, performance, agility, and scalability compared with other networking and security solutions. The interviews identified several more areas of benefit, resulting in a generally high level of satisfaction with Juniper's networking and security products. Some examples are provided here to illustrate common themes:

> » **Flexibility and reliability.** "We are able to work on a *high level of flexibility* for customers. We can provide same day changes at the network services level — like add a VPN. Customers can do self-service additions within the portal. *Juniper is rock solid — no network outages in over two years.*"
> » **High performance.** "*There is a lot more bandwidth*, and more up-to-date equipment which is capable of handling much larger volumes of data. We feel we are in a *much better position to grow the business* and the network, and to make the move to 100 gig."
> » **Simplified operations.** "We chose to be a single vendor company in part to *simplify operations*. One important aspect of that is that we can reduce the learning curve by working with a single vendor. We are a small company, so *engineering resources are limited* and we cannot afford to have multiple technologies and suppliers for any one area. Standardization on Juniper is a critical strategic decision."
> » **Automation through virtualization.** "The virtualization layer with *Juniper abstracts all functionality* — firewalls, load balancers, etc. As a result, *we are saving hundreds of thousands of euros per year*, and we haven't bought any new network hardware in two years."

Organizations selected Juniper's networking and security solutions because they were impressed with the flexibility, performance, agility, and scalability compared with other networking and security solutions.

> » **Consolidation and efficiency through virtualization.** "We also consolidated operations as part of the move to Juniper. We now have less hardware, including servers and networking equipment. We get *more bandwidth and support more traffic with the virtual environment* Juniper technology helped create than we would have with our older equipment."

> » **Lower administrative overhead.** "As we move more and more deployed customers over, we have fewer support calls and less administrative time spent on the customers who are on Juniper … As a result, *administrative costs are about 35%–40% lower* with Juniper."

> » **Reliable network, less downtime.** "*The Juniper network is robust.* It is also less prone to operator error … *Downtime is not significant nor measureable.* We have taken on some ambitious change in adding Juniper, with no increase in downtime. With the competitive product, I am sure we would have seen more downtime with the extent of the changes in the Juniper environment."

> » **Improved application performance through orchestration.** "*Juniper has helped with orchestration.* It allows for software-defined configurations and works as a transport mechanism, so that *applications run better and faster* … We have confidence that downtime will be limited due to the failover and high availability in general from Juniper, which is important for our business."

> » **Reliable network, improved efficiency.** "Probably the biggest thing for us is that by being a *robust and reliable platform*, we have been able to focus on higher levels of service and delivery. *We trust the network with Juniper.*"

> » **Automation, improved efficiency.** "There has been a huge impact because we can *deploy for new customers vastly better. Everything is automated with Juniper*, so we don't need to add hardware … The difference is night and day. Our primary task is onboarding new customers. *The time to onboard has been reduced from one month to a week.*"

> » **Virtualization, automation, efficiency.** "In terms of agility, we are *able to implement solutions quicker* with Juniper. Especially when those solutions are based on virtual firewalls and virtual functions. Our *scalability has improved dramatically* because we now know that we can carry a lot more bandwidth and, depending on our customer demands, we can expand, add more bandwidth and capacity as we need to."

> » **Agility, scalability, performance.** "We had no business agility and scalability before with our network because it was completely inflexible. With Juniper, *we have more flexibility and performance* by doubling the number of ports … We gained more speed and bandwidth on every single port. We got *agility and scalability*, and our network to where the business wants us to get."

FINANCIAL BENEFITS ANALYSIS

From the interviews, IDC was able to measure the financial impact of Juniper's networking and security solutions. IDC found that customers saw benefits in four areas: networking and security infrastructure cost reduction, IT staff productivity gains, increased end-user
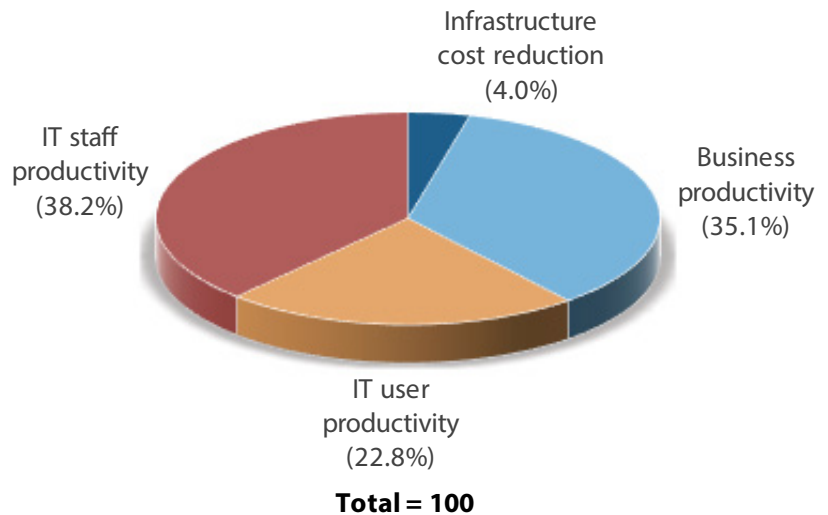
"By being a *robust and reliable platform*, we have been able to focus on higher levels of service and delivery. *We trust the network with Juniper.*"

productivity, and enhanced overall business productivity. The aggregate financial benefit reported by the organizations in this study, as Figure 2 shows, is estimated to be €14,716 per 100 end users per year from the following areas:

> » **Optimized IT staff productivity.** Organizations were able to greatly enhance their ability to proactively manage their networking and security environments and operations, saving €5,616 per 100 users per year.
> » **Improved business productivity.** Users in this study were able to describe the direct effects of Juniper Networks' solutions on network and application performance increases. SP customers reported experiencing increased efficiencies in managing the networks and onboarding new customers, which directly translates into business benefits in this case. As the direct business impact is sometimes hard to quantify, IDC has taken a conservative view in calculating what share of these business benefits was achieved directly due to deployment of Juniper's solutions. Nevertheless, IDC has calculated an estimated average benefit of €5,164 per 100 IT users per year compared with legacy networking and security in this area.
> » **Enhanced end-user productivity.** Organizations in the study were able to reduce networking and security-related service disruption and provide quicker responses, resulting in an estimated 86% improvement in end-user downtime. End-user productivity benefited from reducing downtime, as well as improved application performance. The result was that the organizations saved an estimated €3,354 per 100 users per year.
> » **Reduced networking and security environment infrastructure costs.** Juniper's networking and security solutions are viewed as having better price points than major competitors' solutions, or offering more performance for the same price point. Additionally, features such as the reduced number of networking architecture tiers, virtualization, and open networking enable better utilization of networking assets and avoid capex spend on network equipment. Organizations in the study annually saved an estimated €582 per 100 users by choosing Juniper's networking and security solutions to build or upgrade their networking and security environments.

Organizations saved an estimated €3,354 per 100 users per year.

FIGURE 2

Average Annual Benefits per 100 Users

Infrastructure cost reduction (4.0%)

IT staff productivity (38.2%)

Business productivity (35.1%)

IT user productivity (22.8%)

Total = 100

Source: IDC, 2016

Organizations were able to save €5,616 per 100 users per year through optimized IT staff productivity.

Optimized IT Staff Productivity

The organizations in the study selected Juniper's networking and security solutions predominantly because they offered the best price/performance ratio, but also due to their superior management interface and interoperability with other vendors' solutions. Customers found that after the solutions had been in place for some time Juniper's solutions also scored highly on manageability, virtualization, and automation. As Figure 3 shows, Juniper's networking and security solutions impacted every IT task associated with managing networking and security resources:

» **Networking management, planning, and support.** Deploying a networking solution that can virtualize well, and enable automation of management and provisioning tasks, increases efficiency dramatically and reduces management overhead. One customer said: "Traditionally, the great difficulty in networking is you need very skilled people to configure the network. Juniper simplifies managing the network. Cost helped Juniper get in the door, but the products have performed and the technology has developed and grown, which meets our needs as we expand our business." The reduction in the number of FTE networking staff required to perform management, planning, and deployment functions for the customer was between 35% and 39%.

» **Application deployment and delivery.** None of the clients interviewed have in-house application development, but the effect on application deployment and
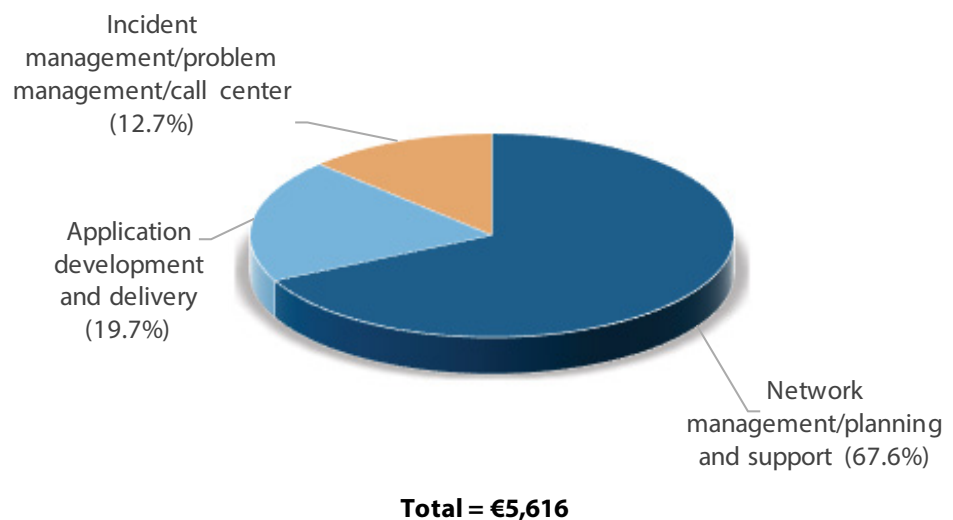
delivery has been noticeable. Respondent organizations have registered an estimated 14% reduction in staff resources required for application deployment after deploying Juniper's solutions.

» **Incident management, problem management.** Organizations have in general experienced greater reliability with Juniper than with the solutions they have deployed in the past. Introducing changes into the network has been easier as well due to superior network management and virtualization. As a result, the time spent on incident management has been reduced by approximately 21%, and time spent on problem and change management by approximately 25% for respondent organizations.

FIGURE 3

Annual Networking Staff Cost Savings Per 100 Users

Incident management/problem management/call center (12.7%)

Application development and delivery (19.7%)

Network management/planning and support (67.6%)

Total = €5,616

Source: IDC, 2016

An aspect that is harder to quantify was a significant change in the amount of time IT staff spend keeping the lights on compared with time spent introducing new features, improving application performance, and supporting business initiatives. As Figure 4 shows, IT networking staff in organizations IDC interviewed spend almost 40% less time on keeping the lights on with Juniper's solutions. This enables organizations to spend more than double the time on innovation or more sophisticated network-related activities.

In the words of one SP customer: "[Juniper Networks' solution] permits us to do more automation in general, such as DevOps and reliability engineering."

IT networking staff spend almost 40% less time on keeping the lights on with Juniper's solutions.

On an annual basis, the companies interviewed saved €5,616 per 100 users by increasing the productivity of IT staff.

FIGURE 4

IT Networking Staff Efficiency Improvement

■ Before Juniper
■ With Juniper
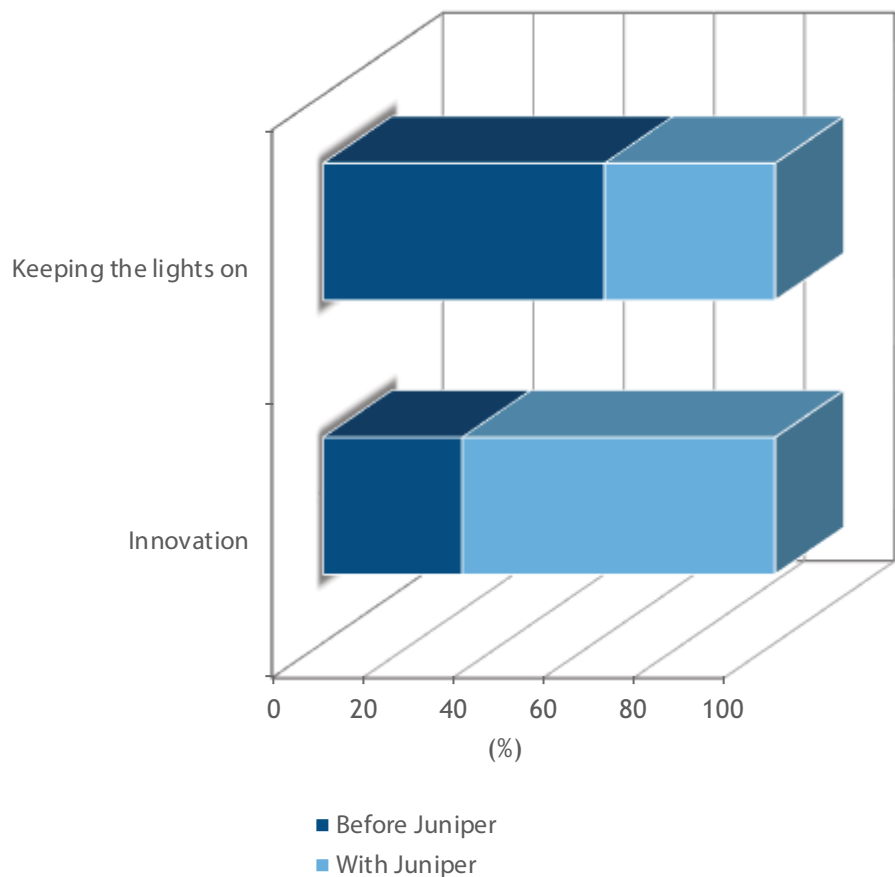
Source: IDC, 2016

Impact on User Productivity

Businesses continue to automate their operations to reduce costs and increase agility. However, the IT environment is rapidly changing. Today, more computing resources are more densely packed into fewer datacenter facilities. Also, the cloud underpins the importance of the network — network failure or planned downtime usually means reduced or halted access to business applications and serious productivity losses. Networking staff constantly seek to increase the reliability of their operations. For the organizations in the study, improved reliability achieved by using Juniper's solutions has had a positive impact on the frequency of unplanned downtime incidents, mean time to resolve (MTTR), and duration of the unplanned and planned downtime. The organizations were effective at keeping the frequency of incidents relatively low even prior to deploying Juniper's networking and security solutions

Juniper networking and security solutions enabled customers to reduce their lost user productivity by 86%.

(around two per year), but recovery time was slow at four and a half hours. With Juniper's networking solutions, they were able to reduce unplanned network outages by an estimated 56%. In fact, two of the organizations reported eliminating networking downtime entirely by using redundant architectures, or have simply had no unplanned downtime with Juniper equipment. More significantly, the two customers were able to reduce recovery time to around 30 minutes.

On average, Juniper networking and security solution customers in the study were able to reduce their lost user productivity by 86%, restoring 82 hours of annual productivity per 100 users in unplanned downtime and 25 hours per 100 users per year in planned downtime. Table 2 shows annual IT user productivity savings per 100 users.

TABLE 2

Annual IT User Productivity Savings per 100 Users

	Planned Downtime Improvement (%)	Unplanned Downtime Improvement (%)
Number of downtime incidents per year	35%	56%
Average downtime duration (hours)	67%	68%
Downtime hours per year per user	86%	86%

Source: IDC, 2016

The study highlighted several examples where the Juniper networking solution brought about a significant improvement in the performance of production systems, leading in turn to improved business outcomes for the company — this is especially true for SP customers, whose network performance is directly tied to their business outcomes.

Deploying Juniper solutions has also helped with disaster recovery. In the words of one customer: "Because of the redundancy and reliability built into the network, we spend less time on [disaster recovery]. We have 'rewritten this chapter.' The network is more automated — we had no automation before. There is automation that will restart the network and put all the connections in place. The network starts as soon as the power is back on, for example. In the past, we had to do everything manually."

Business Impact of Enhancing the Network with Juniper

Juniper's customers reported that their networks now better support their business operations, which is enabling better business outcomes and operational efficiencies from higher employee productivity. Interviewed organizations pointed to benefits from their Juniper deployments such as network agility and scalability to match business demand, being able to onboard customers faster, better meet customer expectations, and provide the

Respondents described productivity benefits that translated to revenue opportunities. On average, the business revenue increase amounted to €5,164 per 100 users per year.

network performance and reliability required to support their day-to-day operations. IDC puts the value that Juniper's customers will realize in the form of increased operating margin and higher employee productivity as a result of these types of benefits at €5,164 per 100 users per year over five years. In addition, interviewed organizations referenced benefits such as having a clear network strategy and confidence in their underlying networks that are less easily quantified. Some quotes that show how deploying Juniper's solutions has improved business productivity are provided below:

» **Customer deployment efficiencies:** "We did not do centralized orchestration, but now we are. Again, it improves deployment. *It provides consistent deployment.* Every deployment is identical. Before it was dependent on the person deploying — standardization, speed to deploy."

» **Agility/scalability:** "As I have said, we are deep into automation. So *agility and scalability with features like all the open APIs and layer 3 topology has helped us.* Juniper has allowed us to develop our solutions and to bolster our own products."

» **Support business growth:** "By being a Juniper house, *we have simplified our deployment and support processes*. From a business perspective, being able to position ourselves to prospective customers as a Juniper house gives us a clear strategy and direction."

» **Support business operations:** "Probably the highest thing is that by being a robust and reliable platform, *we have been able to focus on higher levels of service and delivery.* We trust the network."

» **Better meeting customer SLAs:** "As we move more and more deployed customers over, we have fewer support calls (which we have discussed) and less administrative time spent on the customers who have made the move across to the new network. In the few instances where we are in violation of our SLA, we are liable for less compensation. So, *administrative costs are less and SLA penalties are much smaller than what we had previously.* About a 35%–40% reduction."

Networking and Security Infrastructure Savings

Companies were able to reduce their total cost of networking by 33% and at the same time enhance virtualization support.

As a result of deploying Juniper networking and security solutions, customers in this study have lowered their annual IT expenses for networking and security by an average of €819 per 100 users (see Figure 5). These savings stem from the following key areas:

» **Greater cost-effectiveness.** Organizations interviewed in this study have rated Juniper's switching solutions as more cost-effective and having a better price/performance ratio than the competing solutions. The same was noted for Juniper's routers. It is also worth mentioning that the savings were achieved not only in like-for-like replacements, but also in projects that introduced virtualization into the network. In virtualized environments network utilization rates increase significantly and cost effectiveness benefits become more visible. Average cost savings on networking infrastructure were €717 per 100 users per year.

» **Facilities/power.** Juniper's equipment was rated as more power efficient and requiring fewer facilities than legacy solutions. The improvement here was calculated to be €102 per 100 users annually.

FIGURE 5

Annual Networking Infrastructure Cost per 100 Users

- Ethernet switching ports
- Datacenter interconnect routers
- Facilities
- Power
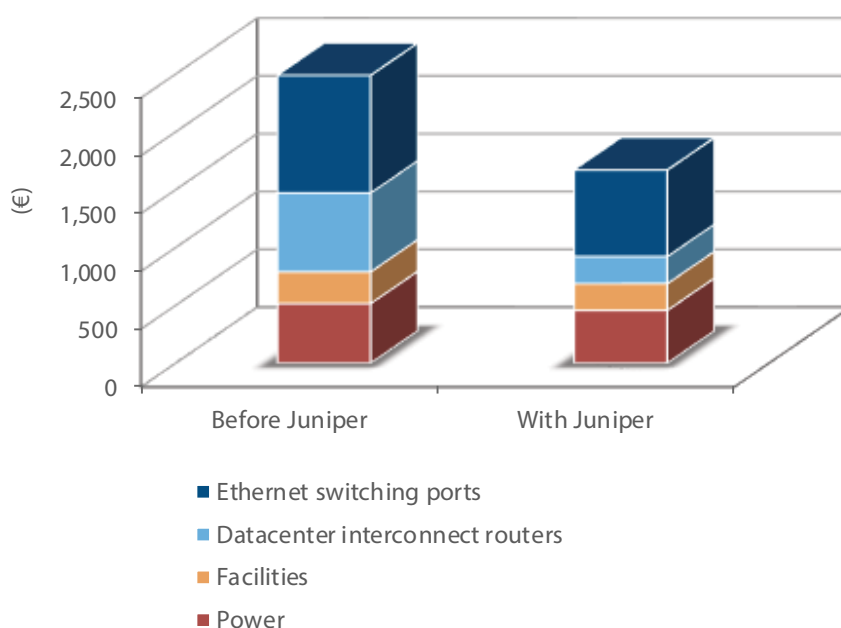
Source: IDC, 2016

ROI Analysis

IDC looks at the cash flows of the financial benefits compared with the investment or total costs of the IT initiatives over a five-year period to assess return on investment. The initial investment included the average total costs to purchase and deploy the new systems, which include hardware and software purchase, consulting and other third-party services required to architect and install the new systems, the costs and lost productivity associated with IT training, and the IT labor required for installation and migration of applications. Annual costs are for support and upgrades. Annual benefits include infrastructure savings, reduced IT labor support, and increased end-user productivity.

Figure 6 shows the undiscounted cash flow analysis. Organizations in this study made an initial average investment of €4,966 per 100 users, which included the purchase and implementation costs to include consulting services and the IT labor required to deploy and

IDC found that customers that implemented Juniper networking and security solutions were able to realize a 349% return on their initial investment.

train. Based on that investment, the organizations realized average annual benefits of €14,717 per 100 users. Over a three-year period, each company saw cumulative net savings of over €40,643 per 100 users.

FIGURE 6

Cost Benefit Analysis
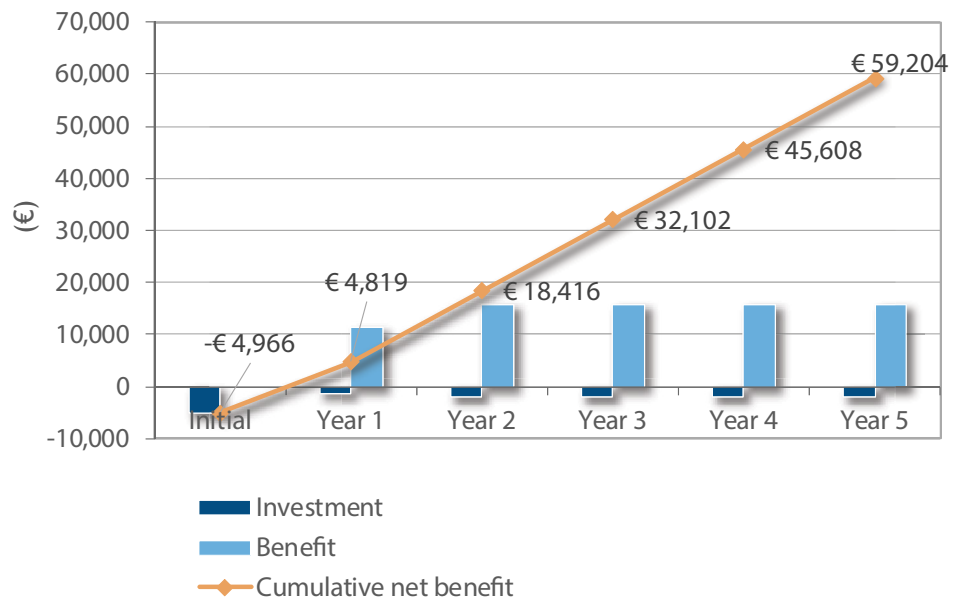
Source: IDC, 2016

Table 3 presents a five-year view of the financial impact of Juniper networking and security solutions per 100 users.

TABLE 3

Five-Year ROI Analysis per 100 Users

Benefit	€52,297.00
Investment	€11,654.00
NPV	€40,643.00
ROI	349%
Payback period	8.6 months
Discount rate	12%

Source: IDC, 2016

IDC uses a 12% cost of capital to discount cash flows. The five-year ROI analysis shows that on average, the organizations in this study spent €11,654 (discounted) per 100 users on technology refresh and received €52,297 (discounted) per 100 users in benefits for a net present value of €40,643. The companies saw an average payback in 8.6 months (after deployment) and an average ROI of 349%.

To put this into context, IT hardware investments commonly provide payback in 9 to 12 months. Payback in 6 to 9 months is normally considered to be very rapid, so the 8.6-month payback for Juniper's networking and security solutions in this study should be considered an exceptional performance.

IDC'S VIEW ON FUTURE OUTLOOK

Juniper has a solid presence in the networking market, and the company is generally viewed as a technology leader and specialist in networking and security, serving both service providers and the enterprise market. The company has a clear networking strategy, focusing on virtualizing its networking portfolio, accelerating practical adoption of new networking architectures such as fabric and SDN, and promoting open networking to enable customers to choose best-of-breed elements to build their networking and security environments. Key elements of Juniper's future strategy are:

> » **Maintaining the pace of Ethernet switching innovation in the campus, branch, datacenter, and SP environments.** Juniper's EX and QFX series switches, as well as its Virtual Chassis Fabric and Junos Fusion architecture, remain its mainstays, while the OCX OCP switch is one of the first steps in the company's foray into open networking hardware.
>
> » **ASIC-based innovation and virtualization in the router portfolio.** Juniper will continue to implement ASIC-based enhancements to its MX and PTX router families, where performance at massive scale ("scale-up") is most efficiently delivered on custom silicon. The portfolio is augmented by virtual platforms, such as the vMX virtual router, which ensures complete feature and operational consistency with the MX Series portfolio while proving ideal for use cases where service agility and scalability ("scale-out") are critical.
>
> » **Continuing the push in SDN and network virtualization.** Juniper continues to strongly support the evolution of SDN into the mainstream, with its in-house Contrail solution, and overlay technologies such as VMware NSX and OpenStack's Neutron. Carrier-grade technologies, such as North Star controller, are also key in driving SDN innovation in WAN networks.
>
> » **Maintaining a strong security portfolio and virtualizing security.** While maintaining a strong market presence with its family of SRX security appliances, Juniper is virtualizing its security functions to capitalize on virtualization trends in the enterprise and to insert virtual security products into SP NFV environments.

Juniper is viewed as a technology leader and specialist in networking and security — serving both service providers and the enterprise market.

The portfolio is augmented by virtual platforms, ensuring complete feature and operational consistency with the MX Series while proving ideal for use cases where service agility and scalability are critical.

CHALLENGES/OPPORTUNITIES

Juniper faces a number of challenges and opportunities in its networking and security business:

» The market is tough, with innovation happening in parallel with the commoditization of networking hardware. In such an environment, Juniper has embraced an open rather than a defensive stance, which creates both challenges and opportunities. The challenge is in managing the transition from a capex-focused, transactional business to a software-based, opex-oriented revenue model. The opportunity is in focusing innovation on software and being able to insert itself in environments dominated by other vendors' hardware, rather than displacing them one to one. By quickly adopting virtualization and network element disaggregation, Juniper is well positioned to take advantage of this trend in the future.

» The networks are being increasingly viewed as an integral part of the larger, integrated IT infrastructures. Juniper's portfolio is focused and targeted on networks and security, but it interoperates well with other vendors' solutions, both in networking and security, and in other IT domains. Juniper needs to maintain and enhance the efforts on integration and interoperability with other parts of the IT infrastructure, and increase customer awareness of its achievements in the field.

» Compared with its bigger competitors, Juniper still lacks visibility and channel presence in some smaller markets. However, it still has a lot of space to grow in the major markets of Western Europe, where its presence is well established and recognized.

» Juniper is pushing hard to make a success of software-defined networking and virtualized networks and security, which are just becoming mainstream. Although these technologies are widely recognized as bringing crucial benefits to networking customers, the transition of mainstream enterprises to these technologies will likely be turbulent. New, disruptive players are already entering the market, the role of open source software is increasing, and clients are changing their buying patterns, acquiring more IT capabilities from the cloud. All these trends will test Juniper's ability to keep up the pace of innovation, but its high profile in some of the most innovative deployments in the marketplace should bolster its market position in the turbulent times ahead.

CONCLUSION

When considering networking transformation, customers need to strike a balance between adding new functionality, increasing performance, and keeping costs under control. Customers we interviewed deploying Juniper's networking and security solutions have been able to do so, and have achieved a robust financial return by deploying high-performance and reliable networking and security solutions, introducing virtualization and automation, and simplifying management.

Most customers interviewed praised the reliability and cost-efficiency of Juniper's solutions. Almost all of them had experience with competing vendors and products, and have measured Juniper in comparison to their existing vendors or the main competitors in the markets in which they operate.

In conducting this survey, it is worth noting that Juniper networking and security users expressed particularly high levels of satisfaction. In particular, clients were impressed by the gains in scalability and agility achieved with Juniper's solution, and this is most evident with the clients that are deploying Juniper's networking solution in virtualized environments. The openness of Juniper's approach to networks is also a major factor here — clients find that the support of other vendors' products or virtualization solutions in Juniper environments is robust, and for some it was a key element in their decision to buy Juniper's products.

APPENDIX

IDC ROI Methodology

IDC utilized its standard ROI methodology for this project. This methodology is based on gathering data from current users of Juniper networking solutions as the foundation for the model. Based on these interviews, IDC performed a three-step process to calculate the ROI and payback period:

» Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and improved revenue over the term of the deployment. Fully-loaded salary cost assumptions are based on standard US$-based salary assumptions that include benefits and overhead — IT staff: €88,000/year, other employees: €61,000/year, average 1,880 hours worked per year.
» Ascertain the investment made in deploying the solution and the associated migration, training, and support costs.
» Project the costs and savings over a five-year period and calculate the ROI and payback for the deployed solution.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

» Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.
» Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
» The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
» Lost productivity is a product of downtime multiplied by burdened salary.
» Lost revenue is a product of downtime multiplied by the average revenue generated per hour.

> » The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.

Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

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