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Juniper Networks Inc.

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Business Value Highlights

\$1.05 million
in benefits per year per
Juniper Resident Engineer

6 months
to payback

40%
more productive IT
networking teams

210%
average annual ROI over
five years

36%
reduction in unplanned
downtime.

22–28%
less time to deploy core
networking equipment

The Business Value of Supporting Networking Operations with Juniper Resident Engineers

Executive Summary

Keeping up with the pace of change is daunting for most IT organizations. Striving to meet the needs of the business is a top priority. Agility, innovation, and competitive advantage are desired but may be taking a secondary role because IT teams are stretched too thin to capture that opportunity and are striving to stay abreast of daily requirements, let alone have bandwidth for innovation. Leveraging the capabilities and engineering expertise of third-party resources can be the boost that many IT organizations need to help them extract maximum value from their technology investments.

Resident Engineers (REs) help organizations optimize their networking investments by highlighting key features and benefits, defining best practices and operational efficiencies, and mitigating risks of using new technologies and processes. These services enable IT teams to utilize their own resources more effectively while allowing them to expand into new innovative, revenue-generating activities. These services provide IT and networking teams the technology and operational guidance to successfully capture new opportunities.

IDC interviewed nine organizations that support their IT networking teams and infrastructures with Juniper Networks Resident Engineers. These customers reported leveraging the knowledge and capabilities of the Resident Engineers to enhance the efficiency of their IT networking staff and improve the ability of their network infrastructures to support their business operations. IDC's analysis shows that customers are achieving strong value of \$1.05 million per year per Juniper RE, which results in an average annual value of more than \$3 for every \$1 invested and a five-year average annual return on investment (ROI) of 210%, in the following ways:

- » **Improving productivity levels** of IT networking staff members, thereby enabling them to take on more strategic work and support value-generating IT initiatives

- » **Designing and implementing more robust and flexible network architectures** that reduce the impact of unplanned outages on users and business operations
- » **Reducing costs** associated with third-party support and training
- » **Making networks more agile**, thereby better supporting IT users and lines of business

Situation Overview

Today's enterprise networks must handle more requirements than ever before because the network is the foundation connecting distributed ecosystems of employees, partners, and suppliers with increasingly centralized applications that drive business operations, productivity and, ultimately, revenue growth. The changing nature and velocity of business, the pace of technology innovation, enterprise adoption of cloud-based IT services, and the pressures of digital business transformation are converging to elevate the importance of agile, cloud-ready networks. In the 3rd Platform¹ era of highly interdependent business processes, applications, and supply chains, networks take on greater importance as the unifying, performance-enhancing element supporting today's technology-dependent business environments.

Couple these market and technology dynamics with enterprises' desire to achieve new business outcomes by leveraging their infrastructure investments, increase innovation, gain greater business agility, increase productivity and efficiency, create new revenue streams, and surpass their competitors, and these dynamics become too unwieldy for most organizations.

To help IT manage these challenges, enterprises have been utilizing support services for many years, ensuring uptime and mitigating the cost resulting from unplanned outages or downtime because of human error. Over time, these services have become more sophisticated with higher value-add. In today's support services market, capabilities are delivered either remotely or on-premise, with the majority of support services being delivered remotely. Remote support services can be delivered through technical assistance centers (TACs) and/or via automated remediation and self-service portals. Remote support services can range from initial client onboarding through dedicated technical phone support professionals.

Onsite support services are typically delivered at the customer location(s) using vendor-badged engineers and can range from one onsite visit to resident consultants for longer engagements. Resident engineer service capabilities evolved as a high-value outgrowth from traditional support contract relationships.

¹ For more details, see www.idc.com/prodserv/3rd-platform.

For customers that require higher-touch services because of the complexity of their network or their desire to accelerate innovation, onsite services are available through a contractual arrangement. Services are delivered as either short project-based engagements or part of a multiyear deployment that is contracted annually. Onsite engineers work as part of the networking team but are still vendor badged. They can deliver immediate assistance to resolve technical challenges as well as provide best practices for innovative ways of leveraging network assets and have immediate access to vendor software and hardware development engineers to resolve complex issues significantly faster than other support modalities. Enterprises that choose this option understand the criticality of their network infrastructure and want to maximize every feature and function, thereby allowing them to be as innovative and competitive as possible.

More importantly, utilizing onsite engineering services helps free up IT resources for training and development, increases the ability of IT teams to engage with more high-value strategic initiatives, and decreases risk when adopting new network technologies.

Juniper Networks Resident Engineer

Juniper Networks Services offers a full life cycle of professional and support services surrounding Juniper's Plan, Build, and Operate suite of service capabilities. Within each phase of the customer's network life cycle, there are defined capabilities that Juniper Networks Services brings to bear in support of its technology solutions.

As customers look to extract maximum value from their networking investments, increase speed of service delivery, and enhance competitive posture while mitigating risks, Juniper has created a set of services to help customers reach these goals. The Juniper Resident Engineer Service offering is part of the suite of services to help amplify the Operate phase of the life cycle.

Juniper Resident Engineers are offered on an annual subscription basis and provide customized assistance for new and ongoing networking deployments. The services are delivered onsite by highly trained Juniper engineers who hold Juniper Networks Certified Internet Expert (JNCIE) and Juniper Networks Certified Internet Professional (JNCIP) certifications and work alongside customers' networking staff to help with specific networking challenges and initiatives. Juniper Resident Engineers will have intimate knowledge of the architecture and design, the staff and the strengths and limitations of the staff, processes and procedures, and key IT and business requirements. The RE will work to align the network with business, operational, and IT initiatives.

The RE will also assist with the deployment of Juniper Networks CPE and day-to-day operations. Other key features and benefits of this service that enterprises may leverage are shown in Table 1.

Table 1. Key Features and Benefits of Juniper Resident Engineer Service

Feature	Benefit
Network troubleshooting and operations support	Minimizes costly downtime, reduces operational costs, and ensures SLA escalation avoidance
Inventory tracking	Ensures the current status of all network assets
Testing	Accelerates the deployment and availability of new services, speeds rollouts, and minimizes downtime
Informal technical and product workshops	Enhances productivity and improves knowledge and readiness of IT teams
Network health assessments	Ensures that the network is running optimally
Reporting and documentation	Improves consistency of project status and sharing and maximizes uptime
Developing standardized procedures	Optimizes the value of high-performance networking and enhances competitive advantage

Source: Juniper Networks Inc., 2017

Juniper Resident Engineers provide expertise and flexibility for customers to augment operational best practices and help deliver rapid onboarding of skills and technology without the expense of hiring and training new IT resources. The services can scale as needed and evolve to be completely customized to align with customer projects, initiatives, and operational requirements.

Study Details of the Business Value of Juniper Resident Engineers

Demographics

IDC interviewed nine organizations that support their IT networking teams and operations with Juniper Resident Engineer Service. Interviewed organizations vary significantly in size, with a typical profile of a large multinational business with an average employee base of 80,300 and a median of 40,000. Interviewees provided experiences from both enterprises and telecommunications service providers, with four interviews being with leading telecom service providers in the United States, EMEA, and APAC. Further details regarding the firmographics of the interviewed organizations are highlighted in Table 2.

Table 2. Firmographics of Interviewed Organizations

Firmographics	Average	Median
Number of employees	80,300	40,000
Number of IT staff	4,662	3,500
Number of IT users (internal)	78,800	40,000
Number of business applications	746	250
Number of IT networking staff members	329	140
Countries	United States, France, Germany, and Malaysia	
Industries	Entertainment, government, natural resources, research, retail, and telecommunications	

n = 9 Source: IDC, 2017

Table 3 provides an overview of the Juniper networking environments supported by the organizations' Juniper Resident Engineers. Study participants had on average five Juniper Resident Engineers at the time of their interviews, although the median was one Juniper Resident Engineer. These Juniper Resident Engineers support significant IT networking staff (80 on average) and Juniper networking hardware environments.

Table 3. Juniper Networking Environments

	Average	Median
Number of Juniper REs	5	1
Number of IT networking staff team members supported by Juniper REs	80	17
Number of sites supported by Juniper REs	292	40
Number of Juniper Ethernet switching ports	5,075	150
Number of Juniper datacenter interconnect routers	283	45
Number of Juniper firewalls	59	15

n=9 Source: IDC, 2017

Business Value Analysis

Interviewed organizations reported that they are achieving substantial value through their investment in their Juniper REs. They referenced the expertise, knowledge, and capabilities that they gain from their Juniper REs, which have enabled them to make their IT networking operations more efficient and better able to support their evolving business operations. Study participants homed in on specific ways that their Juniper REs are creating value for them:

- » **Fast onboarding and ability to integrate with IT networking teams:** *“Our Juniper Resident Engineers understood our needs early on. They ‘got’ what we were doing. From an early time, they were able to offer useful advice.”*
- » **Quality of relationships between Juniper REs and IT networking staff:** *“Our Juniper Resident Engineer became part of the operations in very little time, and we have the same person in the RE role today.”*
- » **Technical expertise and ability to leverage Juniper know-how:** *“Our Juniper Resident Engineer has helped us by providing good information about software and components — including in-depth technical background information. He has a good relationship with the engineering department at Juniper, which provides helpful information on the resolution of operational tasks.”*

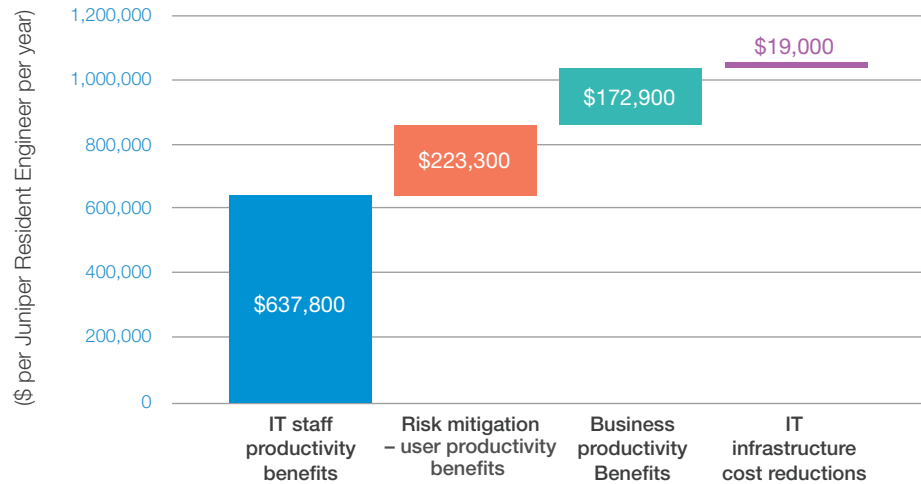
» **Unique skills and informal training:** *“Each of our three Juniper Resident Engineers has unique skills, which have enabled higher productivity by enabling our team to work on higher-priority projects We ended up with a great all-around design. We’re getting lots of informal training for U.S. teams, and they work with our internal training people.”*

» **Impact of knowledge on network design and operations:** *“The knowledge base our Juniper Resident Engineers provide on the Juniper equipment we have or are considering obtaining is invaluable. That has a direct link to the security and overall reliability of our network.”*

Study participants are leveraging these qualities and capabilities of their Juniper REs to make their IT networking operations more efficient and effective. As shown in Figure 1, IDC calculates that each organization will achieve benefits worth an average of \$1.05 million per year per Juniper RE (\$5.30 million per organization over five years), which translates to an average annual value of more than \$3 per \$1 invested, in the following areas:

- » **IT staff productivity benefits:** Juniper REs enable IT networking teams to become much more efficient and productive. IDC puts the average annual value of time savings and productivity gains for these teams at \$637,800 per Juniper RE (\$3.21 million per organization over five years).
- » **Risk mitigation — user productivity benefits:** Juniper REs help design and configure more efficient, robust, and modern network infrastructures, which result in less user- and business-impacting network outages. IDC calculates the average annual value of higher employee productivity from reduced downtime at \$223,300 per Juniper RE (\$1.12 million per organization over five years).
- » **Business productivity benefits:** Juniper REs support more agile and higher-performing networking infrastructures, which enable certain employees to be more productive. IDC projects that study participants will capture the average annual value of higher employee productivity at \$172,900 per Juniper RE (\$871,100 per organization over five years).
- » **IT infrastructure cost reductions:** Juniper REs allow interviewed organizations to reduce and avoid third-party support and training costs related to their networking environments. IDC puts the average annual cost savings at \$19,000 per Juniper RE (\$95,800 per organization over five years).

Figure 1. Average Annual Benefits per Juniper Resident Engineer



Average annual benefits per Juniper Resident Engineer: **\$1.05 million**

n = 9 Source: IDC, 2017

IT Staff Productivity Benefits

Study participants credited their Juniper REs with making their IT networking teams substantially more effective and efficient. They pointed to knowledge transfer, formal and informal training, and day-to-day work carried out by their Juniper REs as driving these efficiencies. As a result, their IT networking teams perform better in ways such as recognizing and resolving network-related problems faster, leveraging a better understanding of network hardware, creating and using scripts for network automation and policy, and deploying and maintaining more robust and agile network environments.

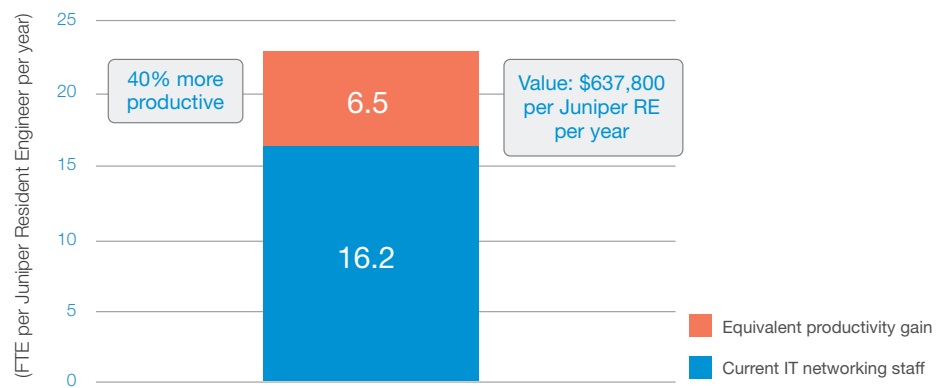
Interviewed IT network managers referenced these types of benefits in discussing the impact of their Juniper REs in the following areas:

- » **Network support:** *“The clear impact of using Juniper Resident Engineers is on network support. Their engineers can analyze, support, and maintain the network and figure out problems and address them more quickly than we could ourselves. Before we had the Juniper REs, we took much longer to deal with issues, especially major issues that came up on the network.”*
- » **Network design:** *“The key contribution of our Juniper Resident Engineers is helping us vet network design The Juniper REs are able to bring in [Juniper] visionary experts to help us with long-term planning.”*

» **Network operations:** “Through our Juniper RE, our staff has more technical knowledge about the network. The RE is continually educating and informing us about network operations.”

As a result, IT networking staff working with Juniper REs are substantially more effective and productive. Study participants attributed an average 40% productivity gain (29% more efficient) to networking team members who work with Juniper REs (see Figure 2). This has created opportunities for them to spend more time supporting IT and business innovation. One study participant linked these staff efficiencies and business outcomes: “Our networking team can be focused on more value-added work to help achieve higher revenue.” Another participant said that “[we] can focus on getting new ideas on how to manage and improve our network.”

Figure 2. Impact of Juniper Resident Engineer Service on IT Networking Team Staff Productivity



n = 9 Source: IDC, 2017

Risk Mitigation and Availability

Interviewed organizations reported that support from their Juniper REs, as well as knowledge transfer and training, has enabled them to deploy and maintain more robust network architectures. This results in a better user experience and minimizes disruptions caused by unplanned network outages. In particular, study participants cited benefits such as being able to better isolate and remedy potential issues, interfacing with other Juniper engineers, and leveraging recommendations from their Juniper REs about potential threats and network design to deliver higher levels of network availability. One interviewed IT network manager commented: “We now have a more robust and reliable network with Juniper’s Resident Engineer Service. The Juniper RE provides troubleshooting expertise — reactive and proactive — that improves our use of network resources.” Another interviewed IT network manager explained that by having a better understanding of its network, the organization “has been able to test network configuration and architecture for better performance and reliability.”

Reducing the frequency and duration of unplanned network-related outages enables these organizations to limit the amount of productive employee time lost and avoid potential revenue losses. Study participants reported that they have leveraged expertise from their Juniper REs to improve network reliability and give employees back an average of 36% of time previously lost to unplanned outages. In addition, study participants reported that their Juniper REs help them maintain and update their network infrastructure in a way that exerts a lower cost of planned outages and maintenance windows (43%), as shown in Table 4.

Table 4. Impact of Juniper Resident Engineer Service on Risk Mitigation

	Before Juniper Resident Engineer	With Juniper Resident Engineer	Difference	Benefit (%)
Unplanned downtime				
Number of instances per year	19.6	18.0	1.6	8
MTTR (hours)	3.6	2.5	1.1	30
Productive hours lost per 100 users per year	81.8	52.5	29.3	36
Productivity loss per Juniper RE (equivalent FTEs)	6.8	4.4	2.4	36
Value of productive time lost per Juniper RE (\$)	466,602	299,403	167,199	36
Unplanned downtime — revenue impact				
Revenue impact per year per Juniper RE (\$)	177,657	148,376	29,280	17
Assumed operating margin (%)	15	15		
Recognized revenue impact per year per Juniper RE (\$)	26,649	22,256	4,392	17
Planned downtime				
Number of instances per year	22.3	21.0	1.3	6
MTTR (hours)	4.1	2.5	1.6	39
Productive hours lost per 100 users per year	23.0	13.1	9.9	43
Productivity loss per Juniper RE (equivalent FTEs)	1.9	1.1	0.8	43
Value of productive time lost per Juniper RE (\$)	130,921	74,851	56,070	43

n = 9 Source: IDC, 2017

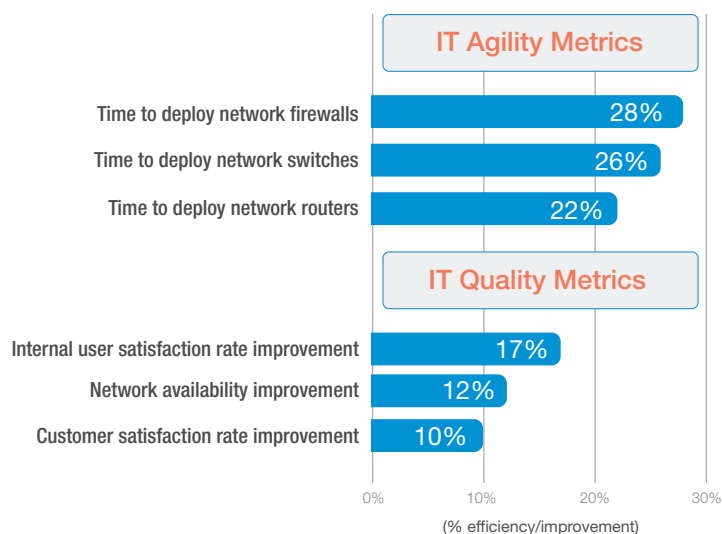
IT Infrastructure Cost Reductions

Interviewed organizations have leveraged support from Juniper obtained through their Resident Engineers to reduce costs associated with third-party network support and training. In essence, this means that they are obtaining substantially more value with their Juniper REs in the ways discussed in this study while being able to trim costs in these areas. IDC puts these cost savings at an average of 16%, or \$19,021 per Juniper Resident Engineer per year over five years.

Business Productivity Benefits

Interviewed organizations attributed improved network agility and performance to their Juniper REs. According to study participants, they have benefited in ways such as leveraging better network design to achieve higher-performance levels, deploying network equipment faster, and developing network architectures that better support their evolving businesses. As a result, interviewed IT network managers linked their Juniper REs to higher user and customer satisfaction with network performance as well as higher network availability (see Figure 3). One study participant described how Juniper REs enable his IT networking team to better support users: “Our internal customers are definitely happier because we interface better with the application owners. Our users are always requesting changes, and the Juniper REs interact with the app owners to make sure their ideas are implemented.” Another organization commented on how its Juniper REs helped it modernize its network infrastructure and support its business: “Our Juniper REs help us create a platform that enables us to grow our services, which is a competitive requirement for us. For example, we have to provide reliable, quality streaming services, which means that modernization and agility are necessities.”

Figure 3. Impact of Juniper Resident Engineer Service on IT Agility and IT Service Levels



n = 9 Source: IDC, 2017

As a result of greater network agility and performance, study participants noted operational efficiencies for certain groups of employees in the form of higher productivity levels, as shown in Table 5. One interviewed IT network manager explained how his network was better positioned to support his company’s expanding operations: *“Juniper is the technology running the core network for the business, and our Juniper RE’s knowledge helps us support the network and handle the increased traffic from customers We can handle demands of network traffic more easily — there is less concern about the network.”*

Table 5. Impact of Juniper Resident Engineer Service on Business Operations

	Per Organization	Per Juniper Resident Engineer
Productivity gain from improved application/network performance		16.7%
Number of impacted users		35
Additional productive hours per year	16,302	3,236
Equivalent FTE impact	8.7	1.7
Value for model (\$ per year)	849,000	168,547

n = 9 Source: IDC, 2017

ROI Analysis

IDC conducted interviews with nine Juniper customers that are using Juniper Resident Engineer Service to support their IT networking teams and network infrastructures. The results presented in this study are based on these interviews. IDC used the following three-step method for conducting its ROI analysis:

- 1. Gathered quantitative benefit information during the interviews using a before-and-after assessment.** In this study, the benefits included IT staff time savings and productivity gains, user productivity increases, and networking-related cost reductions.
- 2. Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the annual costs of using Juniper Resident Engineer Service and can include additional costs, including staff time required to onboard and support Juniper Resident Engineers.

3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Juniper Resident Engineer Service 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.

Table 6 presents IDC's analysis of the investment costs and benefits for study participants associated with using Juniper Resident Engineer Service. IDC has used a five-year time frame for conducting the ROI analysis to reflect the fact that the average organization interviewed for this study has already been using Juniper Resident Engineer Service for several years. However, because both the benefits and the investment costs are mostly annual in nature (rather than one-off), Juniper REs return more than \$3 of value per \$1 invested per year on average.

IDC calculates that these organizations will invest an average of \$1.22 million per Juniper Resident Engineer (discounted over five years) and can expect to realize benefits worth \$3.78 million per Juniper Resident Engineer (discounted over five years). This level of investment costs and benefits would result in an ROI of 210% over five years, with breakeven in the investment occurring in an average of six months after initial investment.

Table 6. Five-Year ROI Analysis

Five-Year ROI Analysis	Average per Organization	Average per Juniper Resident Engineer
Benefit (discounted)	\$19.02 million	\$3.78 million
Investment (discounted)	\$6.14 million	\$1.22 million
Net present value (NPV)	\$12.88 million	\$2.56 million
Return on investment (ROI)	210%	210%
Payback period	6 months	6 months
Discount factor	12%	12%

n = 9 Source: IDC, 2017

Opportunities and Considerations

Juniper faces a variety of challenges and opportunities for its Resident Engineer Service business:

- » Juniper RE Services allow the networking teams of customers to tap into Juniper's engineering talent and thereby maximize their investment. These services ensure that appropriate features and functionality sets are leveraged at the right time coupled with globally consistent knowledge transfer between Juniper RE Services' team members and the enterprise network staff.
- » Leveraging Juniper RE Services is a significant value-add, especially when customers move from an aging existing architecture to a Juniper architecture. Having onsite resources helps mitigate risks associated with a new environment and operating process, improves uptime, and allows the network to deliver services to the business more quickly, thereby increasing productivity.
- » Juniper RE Services may be best utilized in shorter-term projects, where adoption and utilization are essential. Longer-term engagement may prove too costly for companies smaller than large global enterprises.
- » While Juniper also provides offsite or remote services, a combination of onsite and offsite services may prove optimal — financially and operationally — for a broader set of customers.
- » Juniper's channel ecosystem would do well to tap into RE expertise to ensure consistent delivery of complex solutions.

Summary and Conclusion

Organizations are finding it challenging to manage and keep pace with evolving demand placed on their enterprise networks. Their networks must connect the growing number of employees, partners, and suppliers that need access to data and applications regardless of where they are and the devices they are using. As a result, they must take steps and invest in ways that ensure that their networks offer sufficient agility and performance to serve as a foundation for their digital business transformation initiatives.

Despite broad recognition of the centrality of network agility and performance to business prospects, it can still be challenging for internal IT organizations to establish digital-ready networks effectively and efficiently. Resident engineering services offer one potential way for

organizations to address these challenges. IDC's research shows that organizations that have invested in Juniper Networks Resident Engineer Service are achieving substantial value by leveraging the expertise, knowledge, capabilities, and support their Juniper REs provide to make their IT networking operations more efficient and robustly support their evolving business operations. As a result, IDC's analysis shows that these study participants are gaining back significantly more value in IT networking staff and user productivity and cost savings than they are investing in Juniper Networks Resident Engineer Service while benefiting from having a trusted partner to help effect their digital network transformations.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Juniper Resident Engineer Service as the foundation for the model. Based on these interviews, IDC performs 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) and increased user productivity over the term of the deployment.
- » 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. For purposes of this study, IDC assumed a salary (fully burdened) of \$100,000 per year for IT staff members and \$70,000 for other employees.
- » 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 five-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.

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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