



Sponsored by:
Juniper Networks

Authors:
Cushing Anderson
Brad Casemore
Harsh Singh

April 2019

Business Value Highlights

328%
three-year ROI

34%
more productive network
infrastructure staff

9%
lower network
infrastructure costs

15%
higher productivity of
network security staff

21%
less time spent on network
provisioning/deployment

52%
faster response to network
security issues

35%
more efficient incident
response management teams

Network Automation Requires Well-Skilled Teams: The Business Value of Juniper Education Services

EXECUTIVE SUMMARY

In a multicloud world, applications are increasingly systems of engagement and not just back-end systems of record. Applications expedite business outcomes, increase customer engagement and intimacy, drive competitive differentiation, and often generate revenue. This reality redefines the datacenter and the datacenter network and increases the importance of the datacenter team to ensure that the network is efficient, secure, and agile.

Organizations that rely on their network and applications as critical components of business strategy are increasingly focused on the capability of the networking team. As digital transformation continues to be an enterprise imperative that drives adoption of hybrid IT and multicloud, enterprises are finding that their IT departments are struggling to develop the skills required to implement and fully benefit from networking automation and cloud. IDC believes that this skills shortage continues to inhibit many enterprises from successfully adopting and deploying transformative network automation technologies. But well-targeted training can offer some powerful relief.

IDC interviewed multiple organizations that were utilizing Juniper Training programs. IDC notes that these organizations were realizing significant benefits utilizing Juniper Training courses to train their employees on datacenter network-related technologies. Based on IDC's calculations, these organizations are realizing discounted net benefits worth \$5,266 per course per year (\$1.43 million per organization) by:

- Driving higher IT staff productivity for those responsible for their organization's network and network security operations
- Improving these organizations' network datacenters and security
- Helping businesses get the most out of their Juniper Network investment

SITUATION OVERVIEW

In a multicloud world, applications are increasingly systems of engagement. As mentioned previously, applications expedite business outcomes, increase customer engagement, drive competitive differentiation, and often generate revenue. This trend redefines the datacenter and the datacenter network, thereby increasing the importance of the datacenter team to ensure the network is efficient, secure, and agile.

Enterprises remain engaged in a continuous process of digital transformation as they adapt to the demands of business stakeholders that drive disruptive changes in their markets. For most organizations, agility is a key attribute of transformation, and enterprises adopt architectures, infrastructures, and technologies that provide for agile deployment and provisioning and ongoing operational management.

Organizations that rely on their network and applications as critical enablers of agility are increasingly focused on the capability of the networking team. Enterprises can find that their IT departments are struggling to develop the skills required to implement and fully benefit from networking automation and cloud deployment. IDC believes that this skills shortage continues to inhibit many enterprises from successfully adopting and deploying transformative network automation technologies. This skills gap sometimes causes enterprises to shift workloads to the public cloud as lines of business and developers grow impatient with IT departments' ability to deliver agile infrastructure and consumption models.

The IT skills shortage in areas such as network automation has a negative effect on adoption of technologies that automate and expedite provisioning, improve network programmability, and help facilitate cloud orchestration. To counter this shortage, well-targeted state-of-the-art training can offer some powerful relief.

JUNIPER EDUCATION SERVICES

Juniper Education Services offers a range of learning options for service providers, enterprises, and cloud providers that have adopted Juniper Network solutions. Training content and technical certifications range from courses that describe networking fundamentals through to advanced cloud and automation training including extensive curricula covering:

- Service provider routing and switching
- Enterprise routing and switching
- Security

- Cloud
- Automation and DevOps
- Design

Juniper offers training content in a range of delivery options that allow individuals and teams to learn in their preferred format including:

- Live classroom and online instructor-led training
- Self-paced, lab-based on-demand training
- eLearning and web-based training videos

In addition, Juniper offers the web- and app-based *Junos Genius* continuous learning platform. *Junos Genius* provides technical learning modules, hardware and software elearning, and certification practice exams to help networking professionals learn and prepare for Juniper certifications.

Juniper's Open Learning Program helps new network engineers learn the fundamentals of Juniper technologies and experienced networking professionals transform their skills to cloud, automation, and DevOps networking technologies.

THE BUSINESS VALUE OF JUNIPER TRAINING SERVICES

Study Demographics

IDC interviewed six organizations for this study, asking interviewees a variety of quantitative and qualitative questions about the impact of having their IT staff take Juniper Training programs. As shown in Table 1, the average number of employees in the organizations interviewed was 50,223, the average revenue was \$8.32 billion per year, and the average number of IT staff was 5,417 with a supporting budget of about \$20 million.

From a geographical standpoint, most organizations were United States based with the remainder in Vietnam and the United Kingdom. These organizations also represented a diverse mix of vertical industries including financial services, professional services, healthcare, and telecommunications.

TABLE 1 Demographics of Interviewed Organizations

	Average	Median	Range
Number of employees	50,223	22,650	285–200,000
Number of IT staff	5,417	1,075	150–20,000
Revenue per year	\$8.32 billion	\$6.0 billion	\$50 million to \$27 billion
Total IT budget	\$20.0 million	\$14.5 million	\$1.0 million to \$50 million
Training IT budget	\$1.68 million	\$400,000	\$10,000 to \$7.5 million
Countries	United States (4), United Kingdom, Vietnam		
Industries	Financial services (2), professional services (2), healthcare, telecommunications		

n = 6 Source: IDC, 2019

Study Participants' Use of Juniper Training

Study participants told IDC they selected Juniper Training Services for multiple reasons. They cited Juniper Training's expertise and flexible course offerings and the opportunity to improve their network operations as key reasons they turned to Juniper Training. Study participants made the following observations to IDC:

- Ability to fix servers and network issues:** *"We were having a lot of issues related to servers. Sometimes it was switches or routers at branches that would break. We had a lot of communication breaks and delays in the network, which caused problems with delivering projects on time. ... We chose Juniper Training to improve our networking technology expertise throughout the company. The problems we were having were with other products, not always with Juniper, so we realized we needed to improve our understanding of the network and how it worked with other products."*
- Flexibility and variety:** *"The biggest benefit is flexibility. Juniper offers lots of online courses, and this gives us the ability to do training in-house when we need it. The variety of courses also gives us a lot of options. This is important for our company since we are very proactive on both tech training and ongoing training in general."*

Table 2 shows training usage patterns for employees that took Juniper Training courses. The interviewed organizations had an average of 57 employees take approximately 1.6 courses. This equates to about 91 total courses taken per year.

TABLE 2 Juniper Training Usage

	Average	Median
Number of employees trained on Juniper	57	43
Number of courses taken per employee	1.6	1.5
Total number of courses	91	59

n = 6 Source: IDC, 2019

Table 3 delves a little deeper into the type of courses that these employees are taking. Network management made up nearly a third of all courses, while courses on switches and routers made up a significant portion of classes taken. Other classes that had a sizable number of participants include network design, network automation, network security, and cloud.

TABLE 3 Juniper Training Area Breakdown

Training Area	Number of employees
Network management	29
Switching and routing	18
Network design	11
Network automation	11
Network security	11
Cloud	10
SDN	1

n = 6 Source: IDC, 2019

The Business Value of Juniper Training

Study participants reported that Juniper Training improves IT network staff productivity. Organizations appreciated the business value that they were achieving because of the courses. They talked about how their employees became more productive and learned to handle network-related issues better. Interviewees also spoke to IDC about the quality of Juniper Training courses and how course instructors had the relevant experience that these organizations needed.

Based on IDC's calculations, these organizations are realizing net discounted benefits worth \$5,266 per course per year (\$1.43 million per organization) by:

- Driving higher IT staff productivity for those responsible for their organization's network and network security operations
- Improving these organizations' network datacenters and security operations
- Helping businesses get the most out of their Juniper Network investment

Study participants spoke in detail about these benefits:

- **Faster new hire productivity:** *"Our new employees get comfortable really quick. They get a lot out of these programs. New employees are ready to be productive 30–40% faster than people who are not trained. They get confidence early on."*
- **Better user productivity:** *"For existing employees, the training contributes to professional development and gives them the sense of working for a good company that cares about their professional growth."*
- **Improved network knowledge:** *"Our people are able to understand the product more and dive deep into the product. They are able to support all of our internal users. Juniper Training really helped us go through the transition of changing vendors."*
- **Better-quality training programs:** *"Specialist knowledge is the first criterion we look at, and Juniper has very good knowledge. Cost is secondary. We will pay extra for specialist knowledge, so while third parties may cost less, the knowledge is not at the same level as Juniper. This means having access to professionals that really understand the products and who have worked with customers before. They tend to be highly qualified as opposed to a third party that may not be as qualified or have the right expertise. A real benefit is the ability to test solutions in their labs and then be able to give us solutions for different parameters and functionality and how we could use it in our network."*

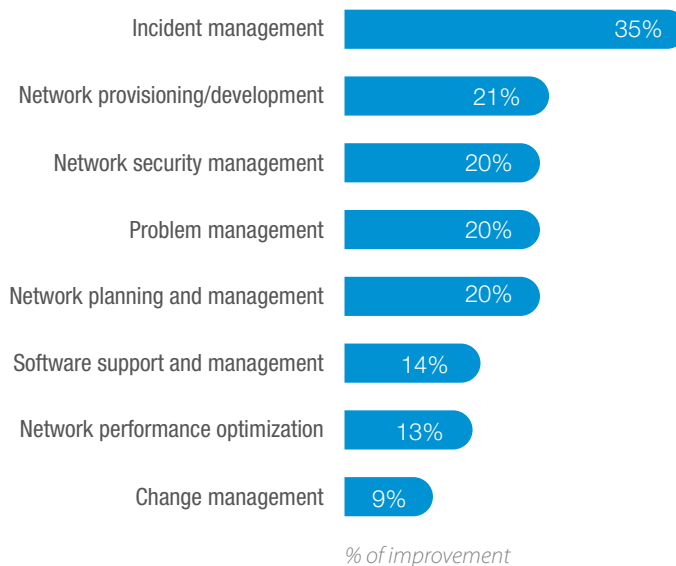
The Benefits of More Efficient IT Operations

Interviewed customers told IDC that Juniper Training provides the experience and knowledge base that help them manage their network-related operations better. Customers talked about how their employees became more productive by developing an ability to respond to issues faster, freeing up time to work on more critical projects. Study participants provided specific comments on these benefits:

- **Able to focus on other projects:** *“We did not redeploy our existing IT employees. We are finally able to tackle projects that have been on hold for some time because we spend less time on firefighting. We now have the time to work on special projects.”*
- **More knowledgeable staff:** *“People have better knowledge after taking Juniper Training classes. They can provide solutions faster from a design perspective. As for agility, we can provide access to the cloud more efficiently. That is in part from knowledge we have gained from the training plus the cloud technology we are adopting.”*
- **Improves employee morale:** *“I firmly believe that employees that get training are in general more productive and more likely to be invested in the company. Juniper has a part in that. We like to think it reflects on us as a company.”*

IDC asked interviewees about the improvements they are observing throughout their IT networking operations. As shown in Figure 1, these organizations experienced staff time improvements across a variety of metrics. For example, these organizations are seeing a 35% improvement in staff time savings related to incidents, while areas such as network provisioning/deployment, network security management, problem management, and network planning and management saw a reduction in staff time required of around 20%.

FIGURE 1 IT Staff Time Savings



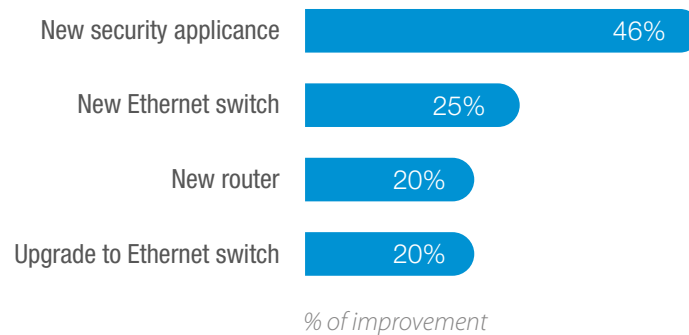
Source: IDC, 2019

Improvements in Network Agility

Organizations are looking to Juniper Training to help them get the most out of their network datacenter resources. As one customer described it, *“With network automation, we can reduce about 20–30% of the time required for implementation and support services and can automate Juniper products. We can deploy a new service faster and monitor all components automatically.”*

Figure 2 delves deeper into the staff time required to upgrade and deploy networks. Study participants reported that their teams can deploy a new security appliance 46% faster. These organizations also reported a 25% improvement in the time needed to deploy a new Ethernet switch, while the time for staff to upgrade an Ethernet switch and deploy a new router each improved by 20%.

FIGURE 2 Network Agility Impacts: Staff Time Required to Deploy and Upgrade



Source: IDC, 2019

More Productive IT Teams

These organizations explained that these time savings added up for their network infrastructure staff. As one participant told IDC, *“Juniper Training has helped us reduce the frequency of sending SNMP requests to devices. We can reduce the risk of requests piling up at any particular device. We can send the data to multiple devices depending on the capacity of that particular firewall. The training has also helped in managing the configuration of devices and user portals to improve mail response time. It reduces the buildup of cache memory on the servers.”* SNMP polling can be resource intensive and inefficient. It also doesn’t scale well, especially in larger environments, so techniques and automation can greatly improve IT operational efficiency.

IDC analyzed the impact of the time savings these organizations are seeing with their network infrastructure management staff. When calculated out on a full-time equivalent (FTE) basis, IDC notes that these organizations were seeing productivity gains of 34%, as shown in Table 4. IDC calculates that these teams were saving about 285 hours per year per course in management activities.

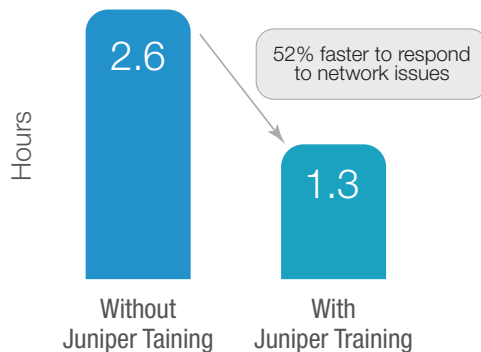
TABLE 4 Network Infrastructure Management Staff Impact

	Without Juniper Training	With Juniper Training	Difference	% Benefit
Management of network infrastructure — FTE impact	46.2	34.5	11.7	34
Employee hours per course	1,000	715	285	34
Staff time cost per year	\$4,621,900	\$3,449,200	\$1,172,700	34

Source: IDC, 2019

Study participants told IDC they saw a significant impact on their network security operations. Juniper Training enabled the relevant staff to save time on network security tasks (refer back to Figure 1). IDC also asked these organizations about the impact on this team’s ability to identify network issues. As shown in Figure 3, these organizations benefitted from a 52% reduction in the time required for network issue identification, measured in hours.

FIGURE 3 Network Security Management and Issue Identification



Source: IDC, 2019

Faster network issue identification and reduced time required for network security issues also had an impact on the productivity levels of network security teams. As shown in Table 5, IDC was able to determine that these teams were 15% more productive, measured on an FTE basis, which equates to about 139 hours per year per course.

TABLE 5 Network Security Management Staff Impact

	Without Juniper Training	With Juniper Training	Difference	% Benefit
Network security operations — FTE impact	44.7	38.0	6.7	15
Employee hours per course	927	788	139	15
Staff time cost per year	\$4,470,600	\$3,800,000	\$670,600	15

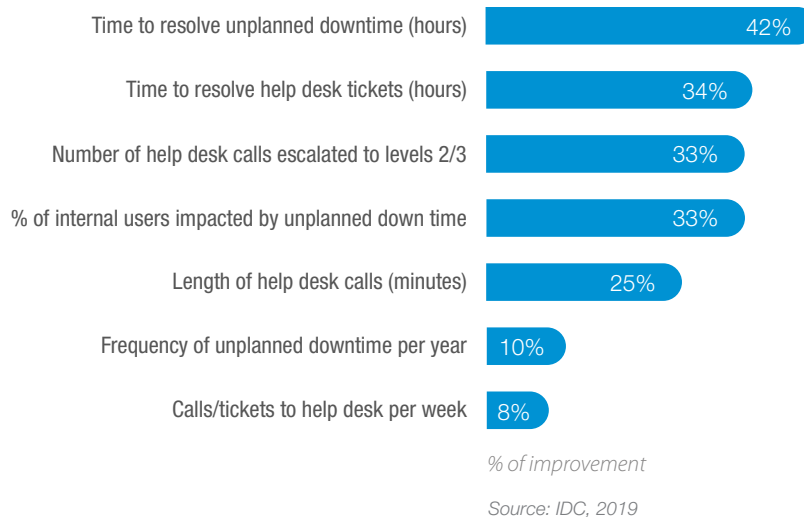
Source: IDC, 2019

IDC also evaluated the impact Juniper Training had on network-related unplanned downtime and help desk operations. Organizations surveyed noted that Juniper Training is having a significant effect on their ability to fix issues quickly. Several customers commented specifically about this benefit:

- More nimble help desk operations:** *“With Juniper Training, we have been able to provide faster response time and mitigate our downtime. As a whole, our IT group is more agile and able to quickly act on our needs.”*
- Able to troubleshoot more quickly:** *“We have both old and new servers. We were able to access older servers properly. However, the newer ones were inaccessible for some reason. As a result of Juniper training, the network team found that a couple of switches were broken. They were able to troubleshoot the problem and replaced switches in just a couple of hours. Without the training, it would have taken six to eight hours to figure out the problem and replace what had failed. So it was four times faster after the training.”*

As shown in Figure 4, these organizations are seeing a 42% reduction in the time it takes to resolve network-related unplanned downtime and a 34% improvement on the time to resolve help desk tickets. Also notable is that the number of help desk tickets that need escalation and the number of internal users impacted by unplanned network outages saw an improvement of 33%. Figure 4 provides more details on several key help desk and unplanned downtime metrics.

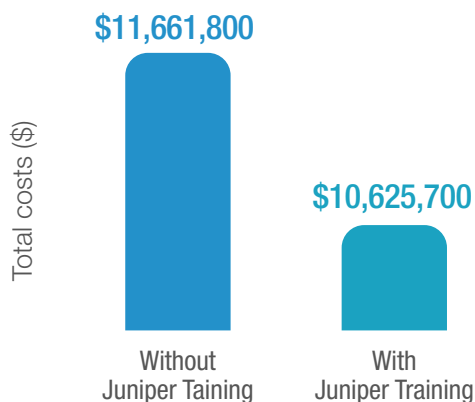
FIGURE 4 Help Desk and Unplanned Downtime Impact



Network Infrastructure Cost Impacts

IDC also evaluated the impact of Juniper Training on these organizations’ network infrastructure. Study participants spoke to IDC about the ability to save on costs for firewalls, switches, and VPN. As one study participant noted, “We are probably saving 50% in support costs for the VPN and firewalls. We expect similar results as we expand our use of switches.” As these organizations improved their ability to automate parts of their network, they were able to drive down the costs of the related network infrastructure as a result. As shown in Figure 5, these organizations are able to save about 9% on their total network infrastructure costs over three years.

FIGURE 5 Three-Year Network Infrastructure Costs



Source: IDC, 2019

ROI Analysis

Table 6 presents IDC’s analysis of the benefits and costs related to participating organizations’ use of Juniper Training. IDC projects that, over three years, these organizations will realize discounted benefits of \$20,617 per course (\$5.61 million per organization). When compared with a discounted investment of \$4,818 per course (\$1.31 million per organization), these organizations will see an ROI of 328%.

TABLE 6 ROI Analysis

	Three-Year Average per Organization	Three-Year Average per Course
Benefit (discounted)	\$5.61 million	\$20,617
Investment (discounted)	\$1.31 million	\$4,818
Net present value (NPV)	\$4.30 million	\$15,799
Return on investment (ROI)	328%	328%
Discount rate	12%	12%

Source: IDC, 2019

CHALLENGES AND OPPORTUNITIES

IDC has long advocated that upgrading skills delivers the most persistent performance improvement in IT operations. Skills development helps IT professionals achieve the capabilities and competencies to meet the IT organization’s biggest challenges: efficiency, security, and agility.

IDC research consistently shows performance improvements result from IT organizations employing well-trained staff. Well-trained IT staff exhibit better understanding of evolving technologies and priorities and are more aware of security issues and technologies. This leads to a greater ability to handle increasingly complex tasks and responsibilities. Specifically, trained IT professionals help achieve the overarching IT priorities of increasing IT staff productivity in network administration and network security operations, improving network datacenter agility and security, and maximizing their Juniper Network investment, all while creating and maintaining motivated employees.

The challenge for all organizations is training the right staff in the right areas. The benefits of training are only found when organizations focus development initiatives on the specific needs

of IT professionals and in areas that matter to the business. Being able to identify the right content for the right employees in time to make a difference can help the enterprise maximize the benefits of its training spending and network automation initiatives.

SUMMARY AND CONCLUSION

More and more, applications expedite business outcomes, increase customer engagement and intimacy, drive competitive differentiation, and even generate revenue. This increases the importance of the datacenter and the datacenter team to ensure that the network is efficient, secure, and agile. IT managers have an opportunity to control costs, increase operational efficiency, and improve service levels and to help the enterprise rely on the network as a critical component of business strategy. At the same time, an IT skills shortage in network automation and other important areas has a negative effect on adoption of technologies that automate and expedite provisioning and otherwise improve network operations.

Relying on well-skilled IT employees can speed implementations, improve response times, and reduce costs. In summary, this research found that organizations that leverage Juniper Training were generally more productive, including demonstrating the following benefits:

- Less time spent on networking provisioning
- Faster network incident response
- More productive network security management
- Lower network infrastructure costs

IDC also recommends that IT managers and IT training managers continually ensure that training programs focus on the following criteria to achieve the best results:

- **Achieve specific improvement in performance:** Begin by targeting specific areas of improvement and offer training to achieve those objectives.
- **Encourage consumption:** Courses must be of a convenient type, length, and frequency to ensure busy professionals will choose to take the class.
- **Reinforce new skills:** IT managers should reinforce the application of new skills through direct observation and feedback, demonstration, or other methods to encourage IT professionals to use the skills they have learned.

IDC believes that combining high-performance expectations with appropriate training and certification can help ensure that complex networking environments operate effectively and maximize value for the enterprise.

APPENDIX

Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Juniper Training as the foundation for the model. Based on interviews with organizations using Juniper Training, IDC performed a three-step process to calculate the ROI and payback period:

- 1. Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of Juniper Training.** In this study, the benefits included staff time savings and productivity benefits and operational cost reductions.
- 2. Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Juniper Training and can include additional costs related to migrations, planning, consulting, and staff or user training.
- 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 Training reports over a three-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.

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 productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded salary of \$100,000 per year for IT staff members and an average fully loaded salary of \$70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- 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.

- 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.

IDC Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-insights-community.com
www.idc.com

Copyright Notice

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

*Copyright 2019 IDC.
Reproduction without written permission is completely forbidden.*

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.