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The Communications Cloud:

CSPs Take On Tomorrow

An Oracle Communications Global Survey

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Introduction

Communications service providers (CSPs)* are under attack from the competition and challenged by shifting customer demands, while aiming to monetize new opportunities and managing network growth.

This is a challenging time.

What does all this mean? CSPs must be prepared to confront these challenges with shrinking budgets and increasing expectations.

Are advances in network technology helping?

Oracle's

"The Communications Cloud: CSPs Take On Tomorrow"

presents findings from 137 individuals at CSPs around the world to understand how initiatives such as network function virtualization (NFV) and the communications cloud† might help them overcome challenges and harness market opportunities.

*Traditional telcos (incumbents and competitors), cable companies offering voice/data telecom services, wireless network operators, and mobile virtual network operators.

†For the purpose of this study, a communications cloud was defined as: "cloud service to which a service provider subscribes. Such a service, provided by a supplier, could be hosted in a public cloud or a private cloud, both of which could be extended to the service provider's premises and network. The service may contain network functions and/or operational technologies (OSS/BSS)."

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State of the Industry

CSPs look to the cloud:

- 71 percent of CSPs believe that a communications cloud could simplify operations, speed time to market, and reduce overall effort. They believe cloud and NFV are the top opportunities to improve their competitive position.

NFV adoption continues:

- 60 percent of CSPs claiming progress with NFV believe that NFV will achieve many objectives in the next two years.
- Objectives around cost reduction and time to market may take longer, but investments continue.

A tough environment, and getting tougher:

- Improving the customer experience and keeping up with the pace of technical changes are the top CSP challenges, and becoming increasingly so.
- Regardless of competitive market position, CSPs generally feel best prepared to handle technical challenges. About half feel ready to conquer customer experience (CX) issues.

Looking for more than just technology suppliers:

- While quality, cost, and reducing risk are important, more than half believe the most challenging communications cloud migration hurdles are nontechnical, and they think it's more important for a cloud partner to provide access to information/expertise in addition to technology than to have only the best technical capabilities.

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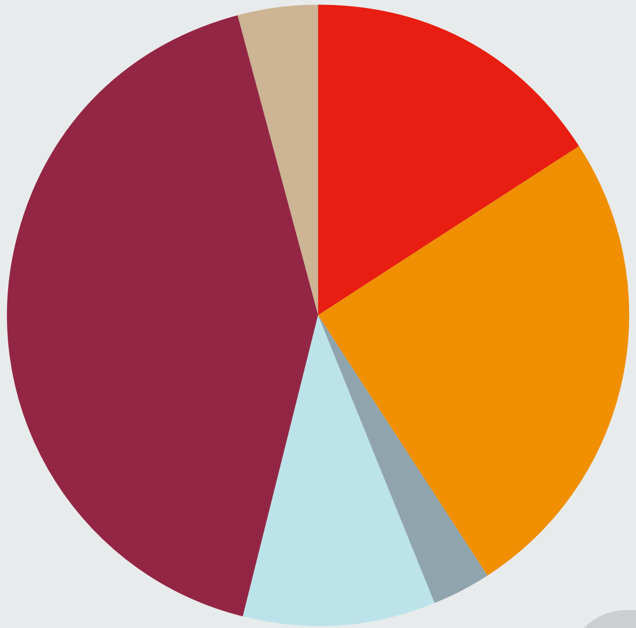
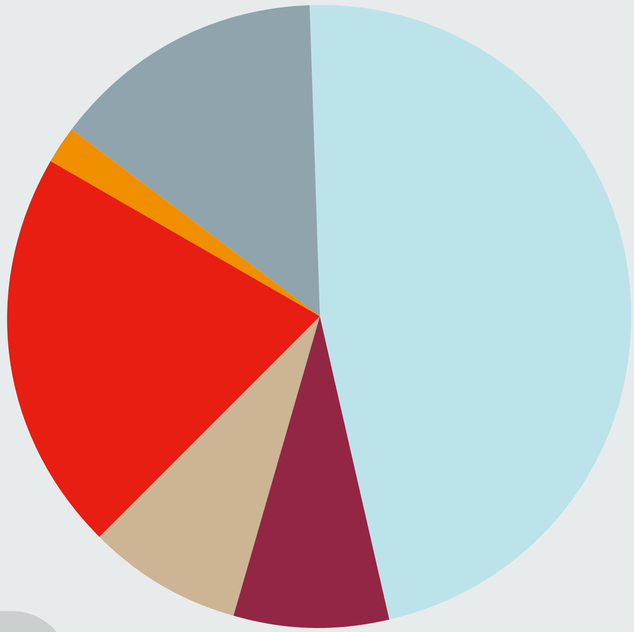
Oracle conducted online surveys with 137 individuals at CSPs from across the globe.

CSP Type

- Fixed Line Operator 16%
- Mobile Operator 25%
- Mobile Virtual Network Operator/Mobile Virtual Network Enabler 3%
- Cable/Multiple System Operator 10%
- Converged Operator 42%
- Digital Service Provider 4%





Location

- US 47%
- Canada 8%
- Central/South America 8%
- Europe 21%
- Middle East 2%
- Asia Pacific 14%

Q1: What type of communications service provider (CSP) do you work for?

Q3: Where is your company located?

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Respondents represented CSPs from across the revenue spectrum and job titles.

Company Revenue

Under US$200 million	24%
US$200 million to US$1 billion	20%
US$1 billion to US$20 billion	26%
More than US$20 billion	30%

Job Titles

Corporate Leader	14%
Technical Executive	20%
Engineering	26%
Network/IT Ops	25%
Business/Other	15%

Q5: What is your company's annual revenue?

Q4: What is your main job function? (Technical Executive includes R&D/Technical Strategy; Engineering includes Network Planning/Engineering; Network/IT Ops includes Network Operations, IT/Data Center and Cloud)

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CSPs believe they are largely not prepared to confront many of the biggest challenges facing their company.

Most important business challenges and level of preparedness to meet them:*

Challenges	Challenge Ranking	Preparedness Ranking
Improving the customer experience	#1	#3
Keeping up with the pace of technology	#2	#2
Monetizing new service opportunities	#3	#7
Managing network traffic changes and growth	#4	#1
Responding to evolving subscriber preferences	#5	#6
Interoperating suppliers, customers, and partners	#6	#4
Responding to new entrant competitors	#7	#5

Q7: Please rank the following business challenges for your company, in order of importance (1 = most important challenge).

Q8: On a scale of 1 to 10, where 10 is "completely prepared" and 1 is "not prepared at all," please rate your company's preparedness to meet the following business challenges.

* Rated themselves as 7 or below on a scale of 1 to 10, where 1 was not at all prepared and 10 was completely prepared.

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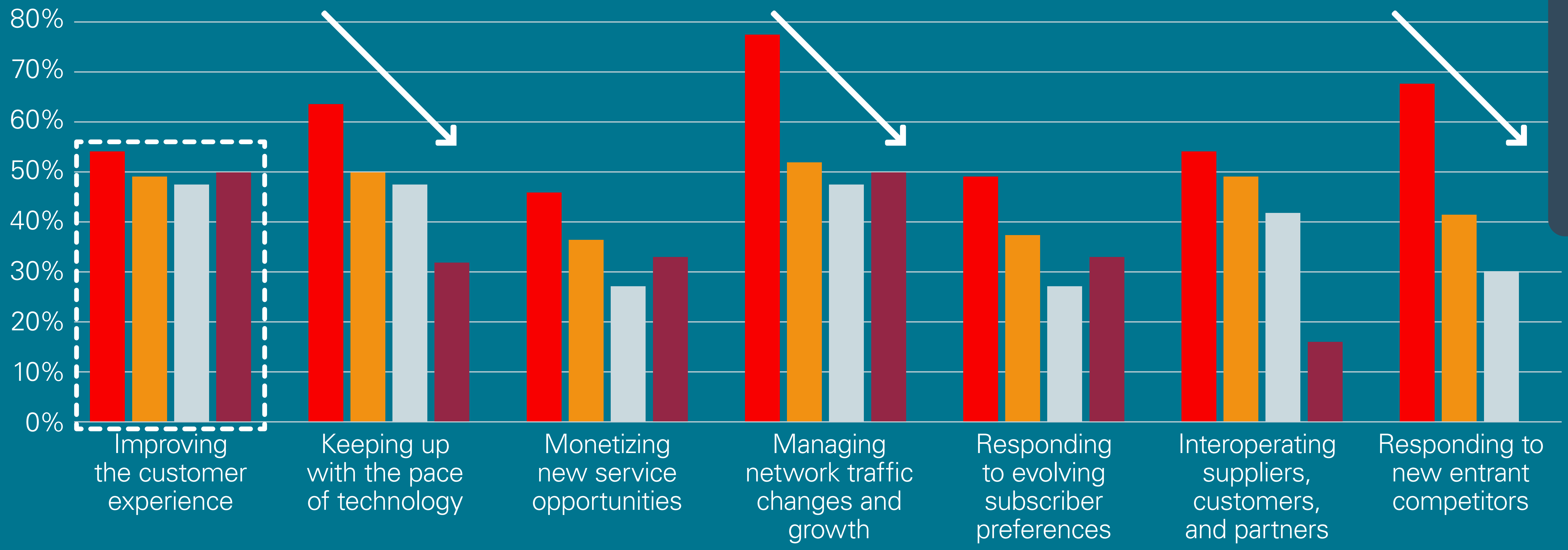
Market leaders say they are best equipped to conquer technology and competitive challenges, but the customer experience is a more level playing field.

Q8: On a scale of 1 to 10, where 10 is "completely prepared" and 1 is "not prepared at all," please rate your company's preparedness to meet the following business challenges.

Feel very well prepared for business challenges:*



* Rated themselves as 8 to 10 on a scale of 1 to 10, where 1 was "not at all prepared" and 10 was "completely prepared."

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CSPs see NFV and the cloud as their best bet to improve their competitive position.

Opportunity to maintain or improve competitive position:

Opportunities	Ranking
Implement an NFV (network function virtualization) architecture	#1
Use a communications cloud service	#2
Use business intelligence and analytics	#3
Invest in omnichannel customer experience	#4
Deploy agile Business Support System platforms	#5

Q9: Please rank the importance of the following potential opportunities for your company to maintain or improve its competitive position (1 = most important opportunity).

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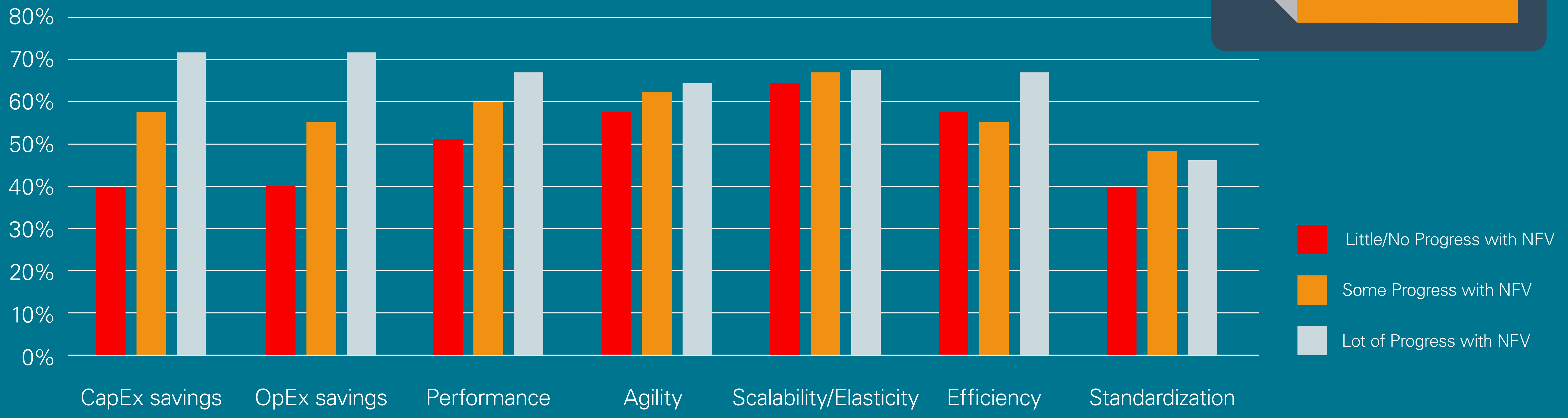
60 percent believe NFV will meet or exceed expectations in the next two years.

Percentage of CSPs that believe NFV will meet objectives:*



Q11: To what extent do you think industry initiatives related to NFV will meet industry expectations regarding the following benefits over the next two years?

* "Will meet" includes those who selected "Will exceed expectations" or "Will meet expectations."

Two-thirds have made noteworthy progress with NFV; they also see the most promise with a communications cloud.

Q10: How much progress has your company made regarding NFV infrastructure deployment?

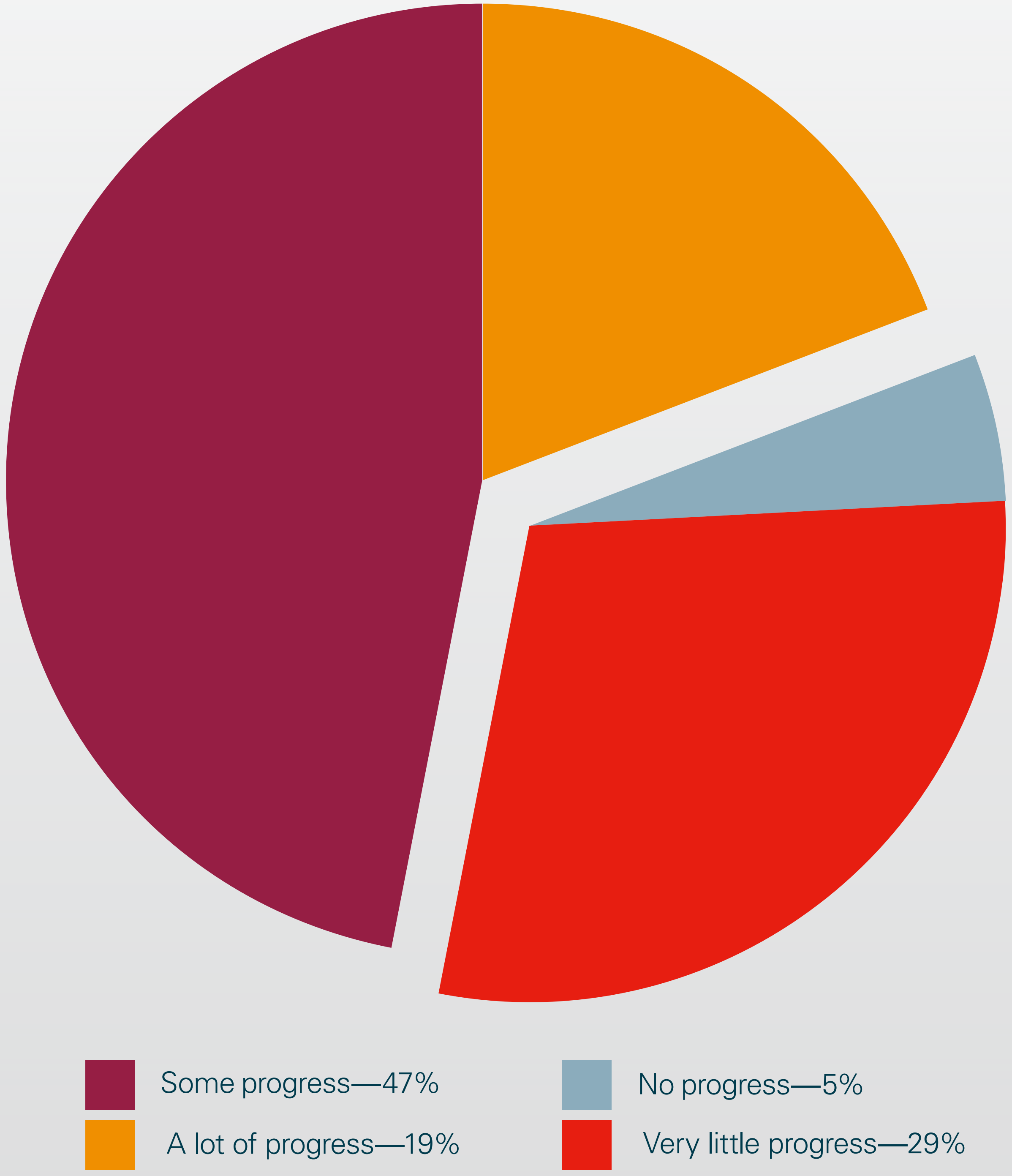
Q20: Please indicate whether you agree or disagree with the following statements: "Implementing a communications cloud could simplify my company's operations, speed time to market, and reduce overall effort."

Progress with NFV

Of those with "Some" or "A lot" of NFV progress,

77%

agree a communications cloud could simplify operations, speed time to market, and reduce overall effort.



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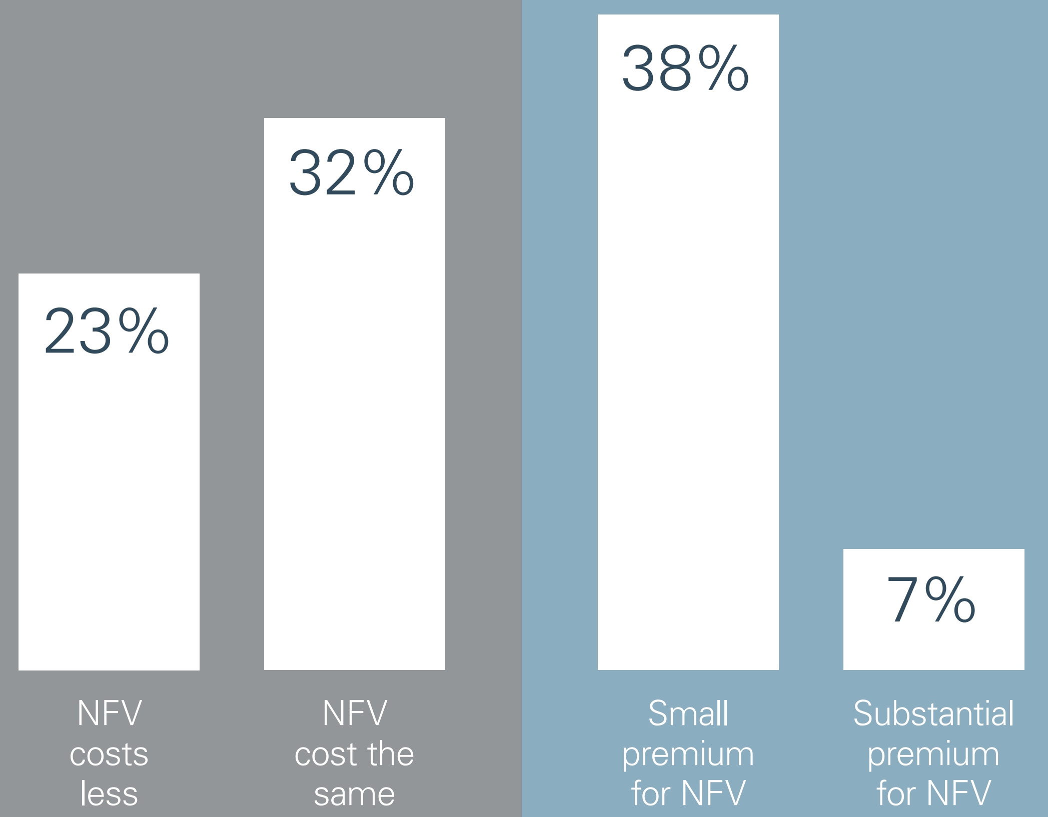
Many are willing to pay a premium to control their own infrastructure, even though the perceived benefits of the cloud are largely the same in key areas.

Cost of NFV versus the cloud:

Q14: How do you think operator-owned NFV infrastructure should compare with web-scale public-cloud providers in terms of cost to provide equivalent services?

53%

believe NFV public- and private-cloud infrastructures are more or less the same or similar in performance, security, and agility.



45%

understand they will pay more for private, operator-controlled infrastructure versus the public cloud.

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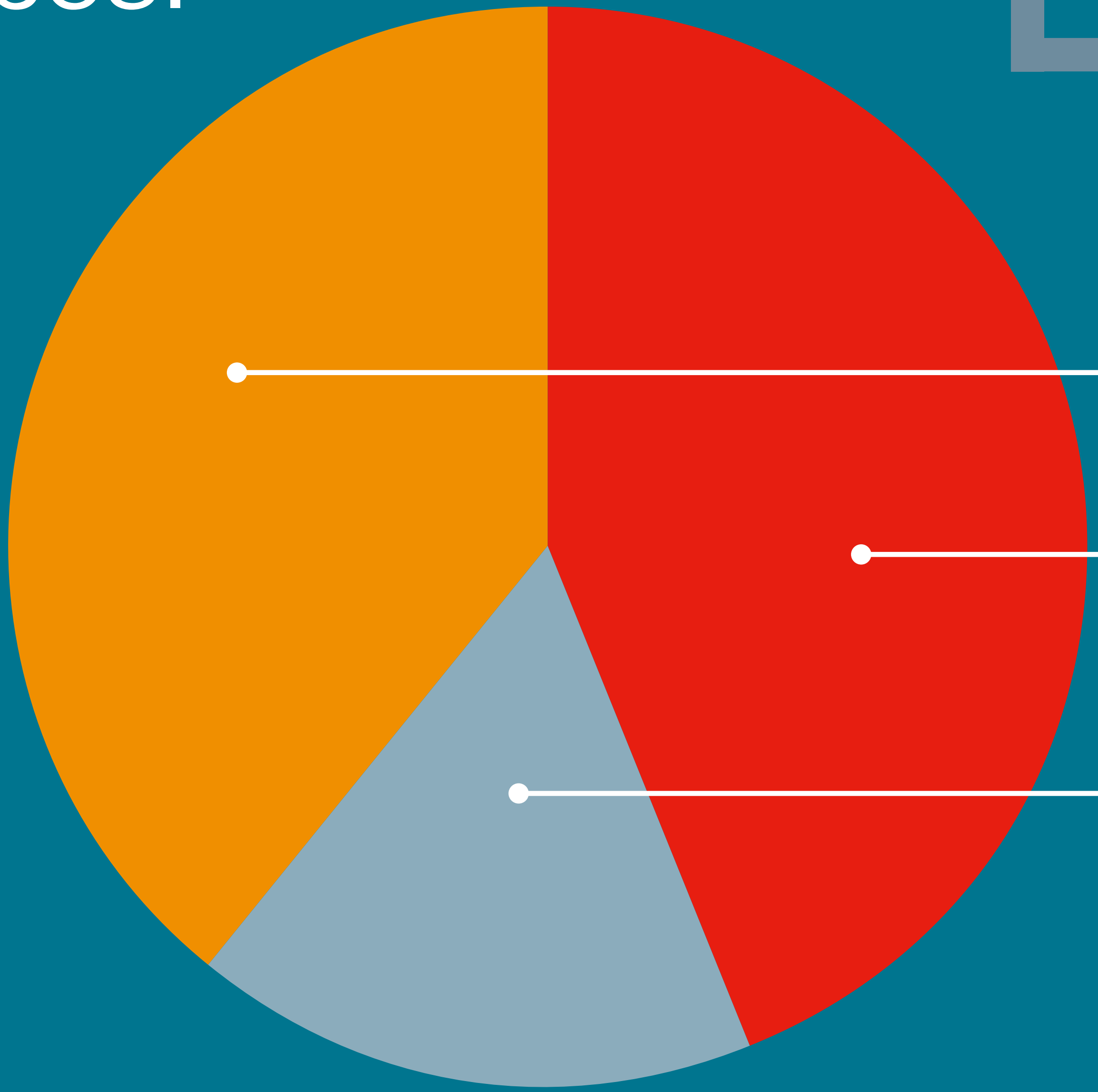
CSPs plan to stay the course with NFV; many see an opportunity to accelerate the use of cloud services.

Network evolution plans:

Q12: If NFV fails to sufficiently meet industry objectives over the next two years, which of the following outcomes do you think is most likely for network evolution?



39% Continue to invest in NFV

44% Accelerate use of communications cloud services

17% Fall back to traditional network architectures

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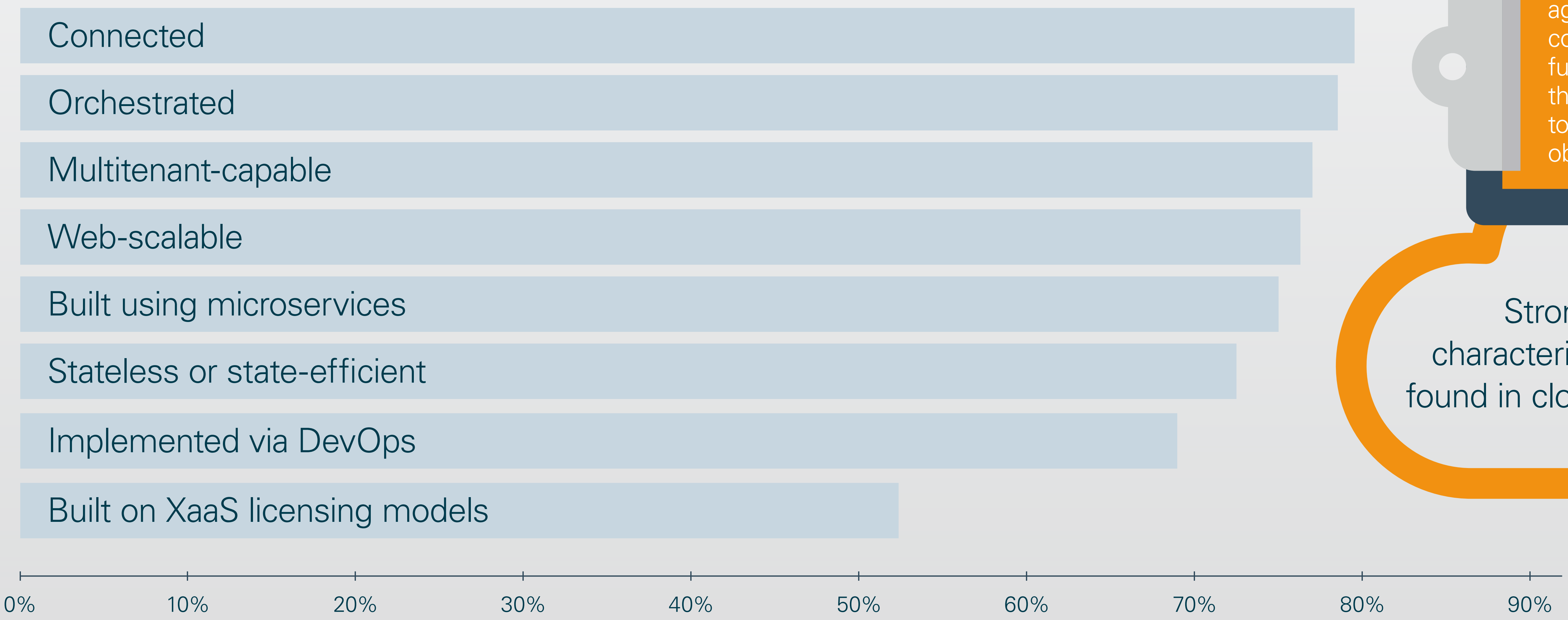
Strong recognition that network-focused objectives require cloud-native architectures.

VNFs must have the following characteristics:*



Q17: To what extent do you agree or disagree that your company's virtualized network functions (VNFs) must have the following characteristics to meet your business objectives?

Strong preference for characteristics most commonly found in cloud-native architectures.

* Includes respondents who chose "Strongly Agree" or "Agree."

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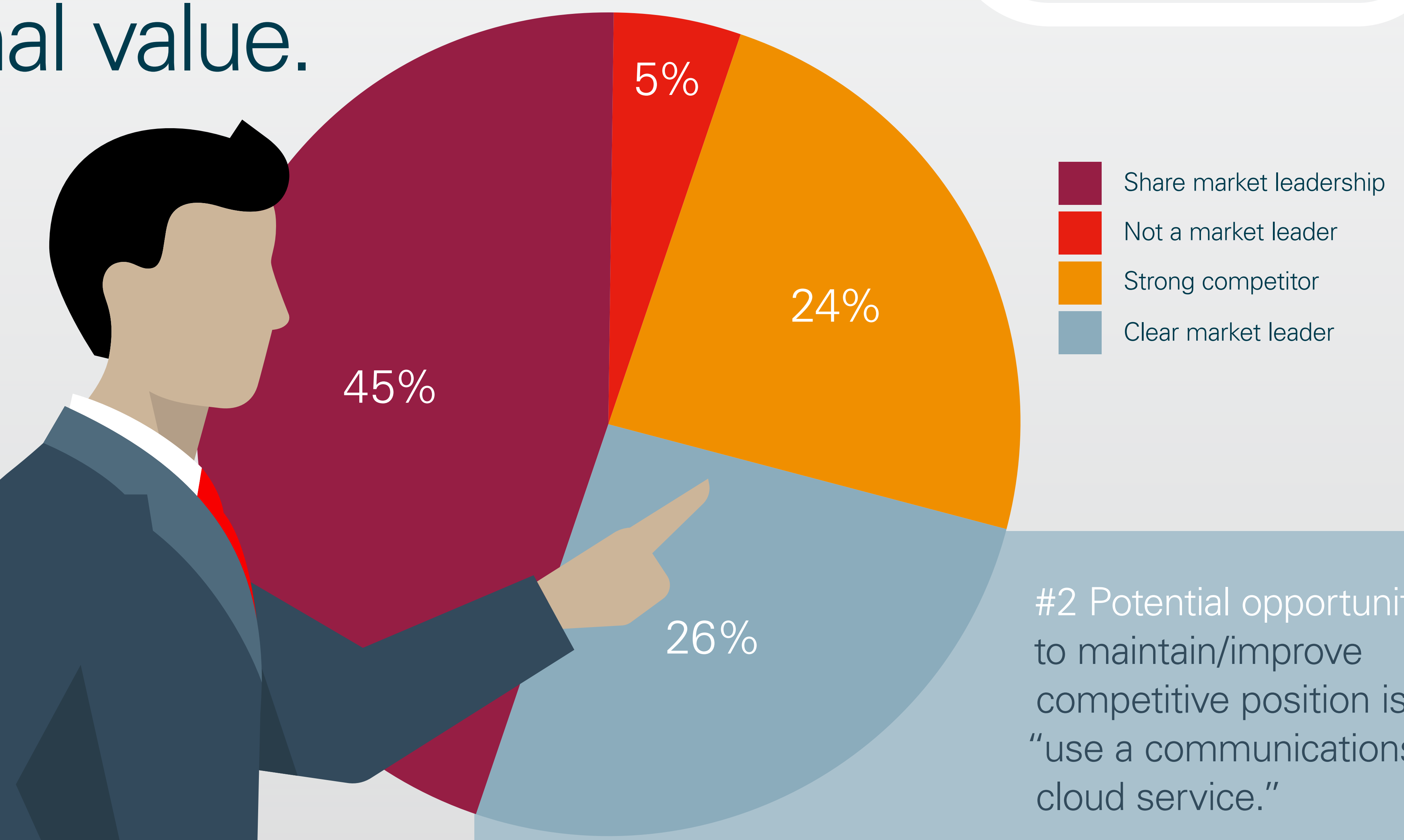
Leading CSPs see cloud as an opportunity to maintain or improve their market position while providing internal value.

Market share position:

Q6: Which of the following best describes your company's market share position?

Q9: Please rank the importance of the following potential opportunities for your company to maintain or improve its competitive position (1 = most important opportunity).

Q20a: Please indicate whether you agree or disagree with the following statements: "Implementing a communications cloud could simplify my company's operations, speed time to market, and reduce overall effort."



#2 Potential opportunity to maintain/improve competitive position is "use a communications cloud service."

71% believe cloud could simplify operations, speed time to market, and reduce overall effort.

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But they are still a bit uncomfortable relinquishing control and feel hindered by legacy systems.

Q20: Please indicate whether you agree or disagree with the following statements: “My company prefers to have control over our hardware/ software, even if it’s not as flexible and agile”, “We want to embrace communications cloud services but feel hindered by the risks of replacing legacy systems.”

53%

want to embrace communications cloud services but feel hindered by the risks of replacing legacy systems.

59%

prefer to have control over hardware/ software, even if it’s not as flexible and agile.

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The cloud can simplify operations and speed time to market, but many challenges are still nontechnical in nature

71%

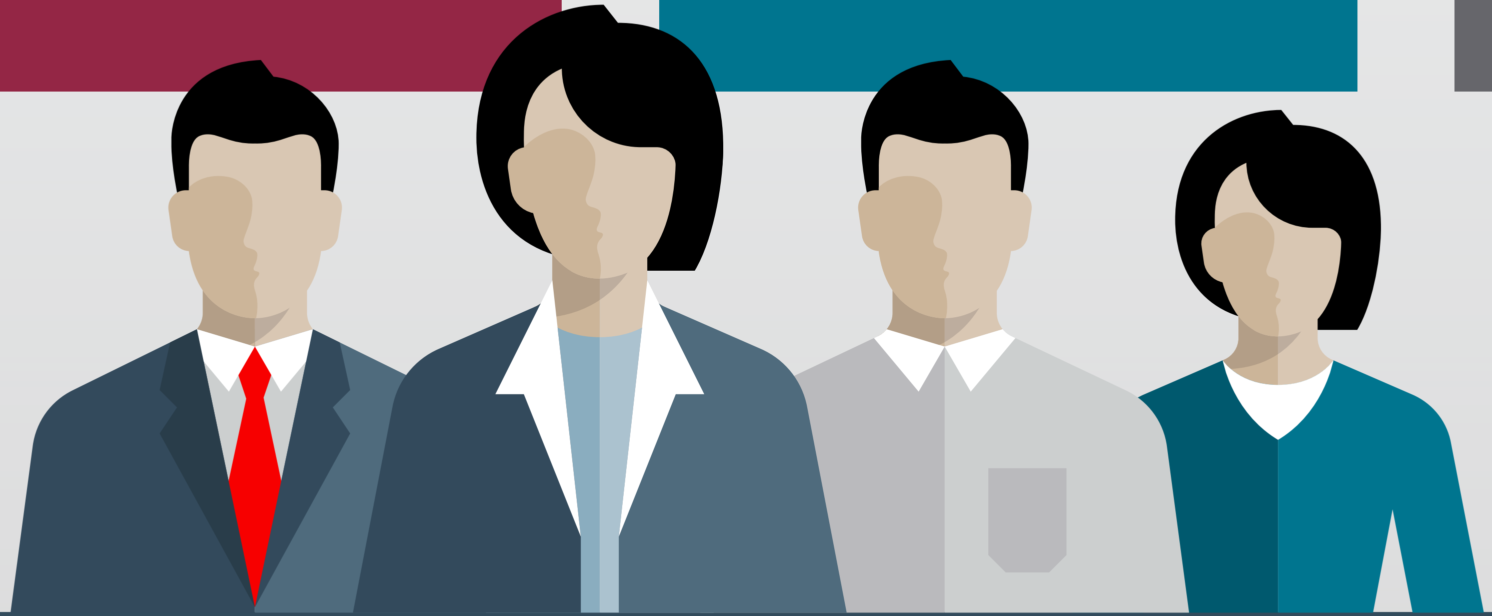
agree a communications cloud could simplify operations, speed time to market, and reduce overall effort.

63%

agree their company is confident they have the right people to embrace the communications cloud.

51%

agree that the communications cloud's most challenging hurdles are nontechnical in nature.



Q20: Please indicate whether you agree or disagree with the following statements: "Implementing a communications cloud could simplify my company's operations, speed time to market, and reduce overall effort, "My company is confident we have the right people with the right skills necessary for embracing the communications cloud", "The most challenging hurdles to migrating to the communications cloud are nontechnical in nature."

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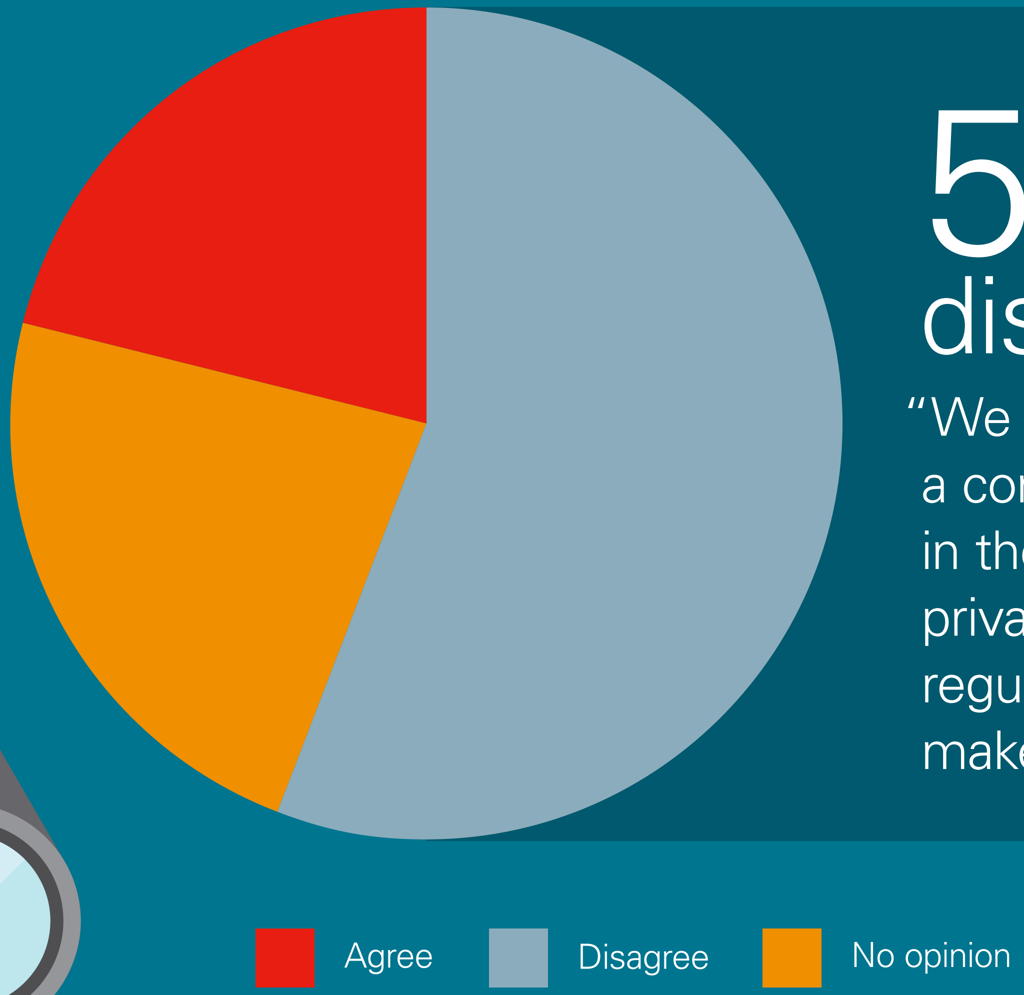
More than half believe privacy, security, and regulatory requirements can be achieved within three years.

Respondent Job Roles

Corporate Leadership	14%
Technical Executive	20%
Engineering	26%
Network/IT Ops	25%
Business/Other	15%

Q20h: Please indicate whether you agree or disagree with the following statements: "We won't implement a communications cloud in the next three years; privacy, security, and regulatory requirements make it too risky."



56% disagree:

"We won't implement a communications cloud in the next three years; privacy, security, and regulatory requirements make it too risky."

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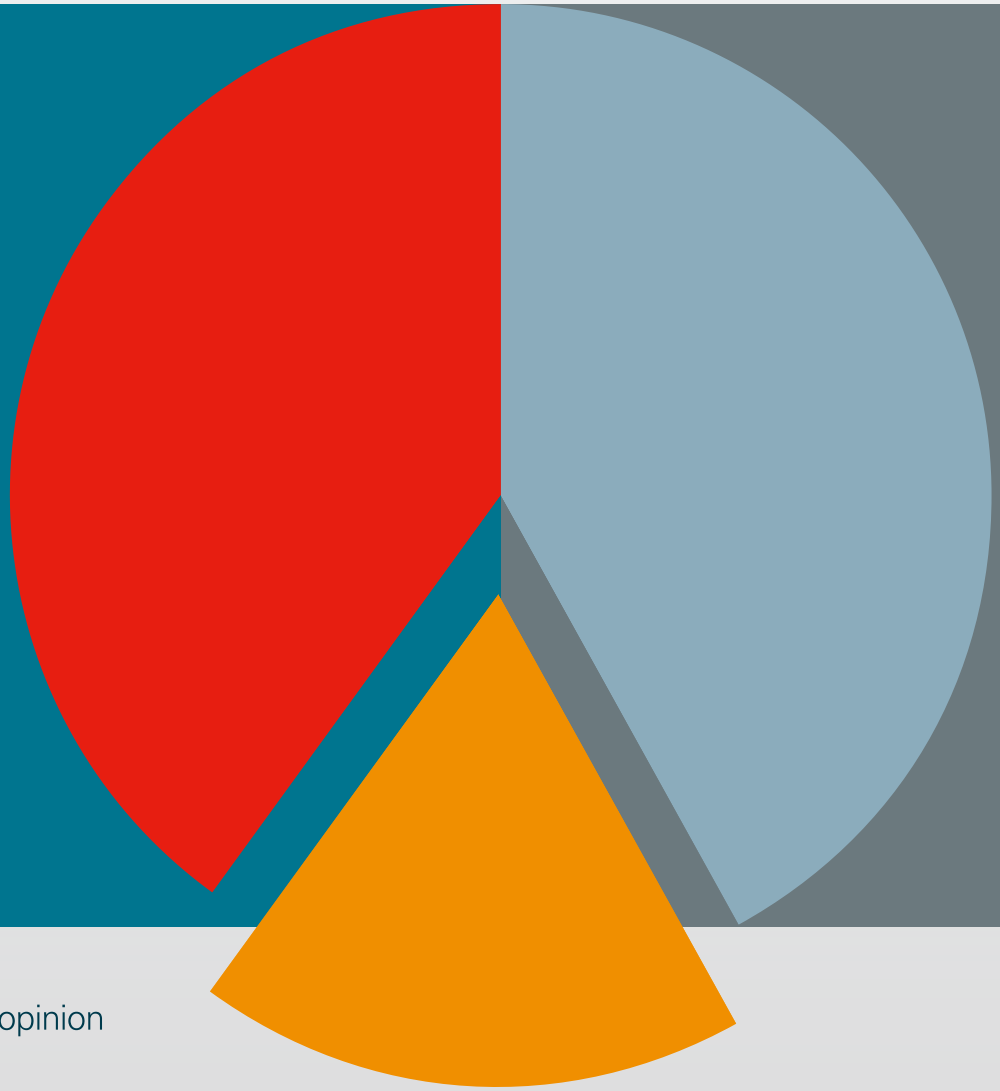
CSPs are evenly split about which vendors they will consider for cloud solutions.

Cloud vendors under consideration:

42%

will not consider new vendor partners even if they forgo some benefits.



40%

will consider new kinds of vendor partner for cloud solutions.

Q20d: Please indicate whether you agree or disagree with the following statements: "My company prefers to select vendors that are currently deployed, even if that means forgoing the potential benefits that new vendors might offer."

Agree

Disagree

No opinion

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CSPs see quality and cost as table-stakes but expect much more from their cloud vendors.

Q18: Please rank the following criteria when selecting a communications cloud vendor (1 = most important).

#1 Quality

(Capabilities, scalability, performance, reliability)

#2 Reduce Cost

(CapEx, OpEx, TCO)

#3 Reduce Risk

(Security, privacy, regulatory)

#4 Connectivity

(APIs, integration, interoperability, ecosystem)

#5 Simplification

(Saves time, reduces effort, avoids hassles)

#6 Vision

(Roadmap, story, leadership, innovation)

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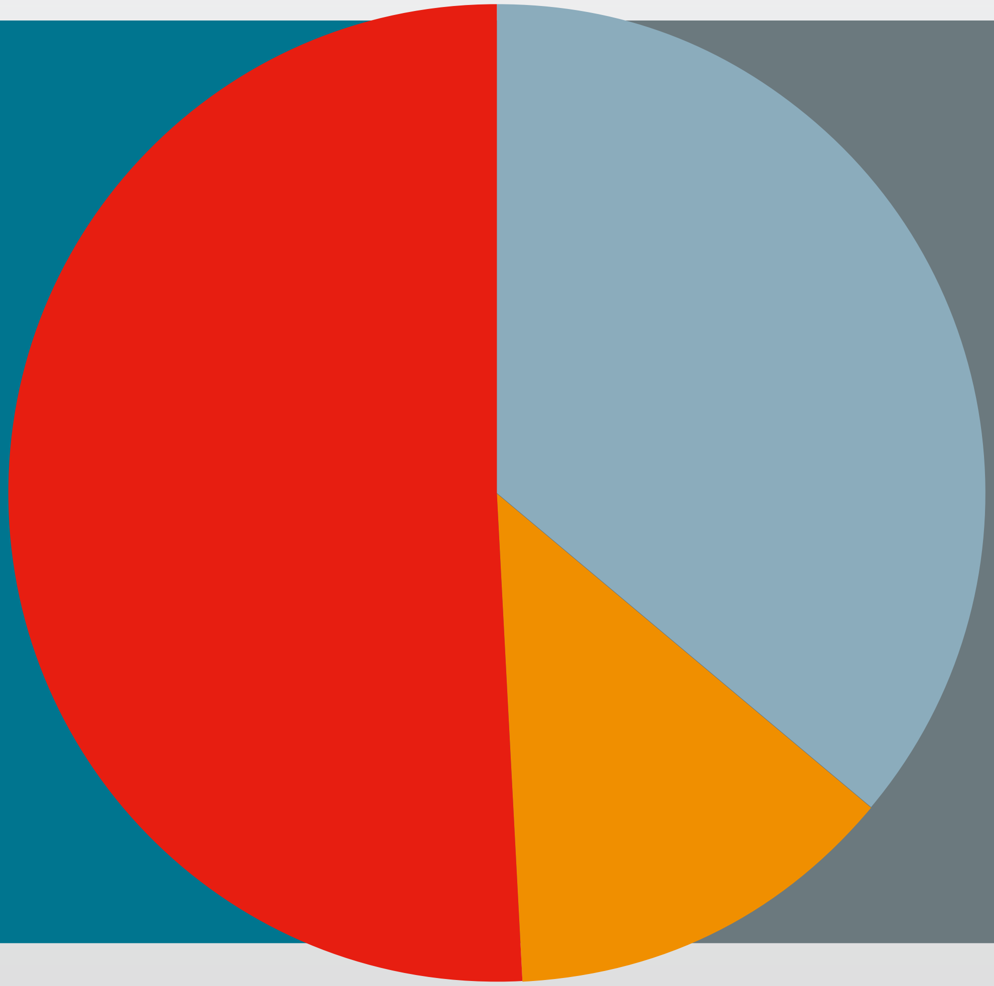
CSPs are looking for more than just technical capabilities from vendors; they want information and expertise.

51% agree



33% disagree

It's more important for a cloud supplier to provide access to information/expertise than to have the best technical capabilities.

Q20f: Please indicate whether you agree or disagree with the following statements: "It is more important for a communications cloud supplier to provide access to information and expertise than to have the best technical capabilities."

Agree   Disagree   No opinion

Our take.

Cloud adoption continues to accelerate:

To be able to compete in the NOW Economy, CSP adoption of the communications cloud services will be key. Expected benefits include simplified operations and faster time to market for new services. CSPs are looking to vendor partners to help manage nontechnical risks including staffing, culture, organizational design, and process/workflow design.

The path to the cloud includes NFV:

Many CSPs see NFV as a step to the communications cloud. CSPs will continue to press forward with NFV investments if positive results are forthcoming, but remain open to other approaches. They insist on cloud-native VNFs to ensure scalability and performance benefits.

Customer experience is paramount:

The customer has more influence than ever. CX remains a big challenge, but in the cloud it is also a first-tier opportunity to improve CSPs' competitive position. CSPs should double down on CX in the cloud to pave the way for network investments in order to deliver the NOW Economy platform.

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For more information:

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