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Linux+NFV+SDN

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# ETRI leads the world in broadcasting and media technology



22-Dec-2016 -- South Korea's Electronics and Telecommunications Research Institute (ETRI)'s broadcasting and media technology has been globally recognized as a leader of related technologies around the world. ETRI is gaining traction in establishing related core technologies as international standards in the industry for UHD, often known as the next-generation television service, which has been expanding its market size.

Researchers from ETRI have developed LDM (layered division multiplexing) technology that can simultaneously transmit and receive UHD and mobile HD broadcasting signals through a single channel, and it was selected international standardization. In addition, ETRI has developed and applied to UHD television, HEVC (high efficiency video codec), enabling twofold greater data compression than the existing technology as well as MPEG-H 3D audio technology to provide multi-channel, multi-objective services. The latter is projected to become available in the global market in the future through application to UHD television service. Based on these achievements, South Korea is scheduled to launch the world's first UHD broadcasting service through terrestrial networks in February 2017.

These two technologies won several awards inside and outside Korea for their excellence, strengthening the position and presence of ETRI. The LDM technology won the Technology Innovation Awards in at the NAB Show 2015, the world's largest broadcasting equipment exhibition, held in the United States in April 2015. The technology was also the subject matter discussed in the top award-winning papers at the BMSB 2012, 2014, and 2015, the world's largest conference for the broadcasting and media industry. For the video compression technology, Dr. Hui Yong Kim was awarded "Inventor of the Year" in May 2015 by the Korean Government Office of Intellectual Property in recognition of his contribution to core technology research.

ETRI researchers have conducted a number of studies related to UHD broadcasting. The research outcomes include HEVC encoder technology to compress 4K-UHD images, which are four times clearer than those in full HD broadcasting, at a rate of 60 frames per second in real time, as well as upscaling technology to convert full HD images into high-quality 4K-UHD images. By the end of 2015, the technologies had been transferred to related companies, which opened broad prospects for entry into the broadcasting equipment markets.

ETRI has recently completed the development of high-efficiency audio coding encoder technology to provide 10.2 channel stereophonic sound service for both horizontal and vertical sides and an interactive service that can selectively control the volume of dialogues and is currently working to commercialize this technology.

ETRI has also successfully developed convergent 3D broadcasting technology to air 3D UHD broadcasting without data transmission, in addition to UHD and mobile HD broadcasting. The institute reflected the technology into the ATSC 3.0 international standard, thereby significantly expanding the scope of viewers' options for broadcasting services. Global attention is also being paid to the MPEG (Moving Picture Experts Group) technology developed by ETRI. With focused efforts to establish MPEG as an international standard, ETRI's media technology is approaching the world's top level.

ETRI is now set to target the global market based on its enhanced presence in the area of broadcasting technologies. In Oct. 2016, upon suggestion by Technicolor & Ateame, French global broadcasting technology companies, ETRI successfully completed the world's first field test in Jeju Island for the LDM technology combined with SHVC, a new type of video compression tech.

ETRI is also facilitating full-scale global cooperation with various international companies. In relation to the UHD broadcasting technology, the institute has thus far registered over 400 patents, published more than 20 SCI-level papers, and completed over 10 cases of technology transfer.

**MORE:** please contact [mgt@e2mos.com](mailto:mgt@e2mos.com)



Daniel Dierickx  
CEO & co-Founder  
at e2mos  
Acting Chief Editor

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Thank you.

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# Proximus to trial NB-IoT in 2017, as LoRa coverage goes national

01 December 2016 – Mobile Europe



Belgian operator Proximus will trial narrowband-IoT (NB-IoT) in 2017, with a view to running LoRa and NB-IoT networks in tandem to serve distinct elements of the Internet of Things market.

Vincent Hebbelynck, Head of Incubation and Corporate Venturing at Proximus, told Mobile Europe's IoT Conference 2016 yesterday there remains significant questions around the viability of NB-IoT, but said Proximus expected to make it a central part of its IoT play alongside LoRa, starting next year.



Watch the Video Interview by Graeme Neill Editor Mobile Europe [Click Here](#) or on the picture

Hebbelynck said: "There is overlap between the two technologies, but they are evolving. A few months ago there was a lot of talk about competition between them, but now people increasingly realise there's a place for both."

He suggested NB-IoT, using licensed spectrum, is more suitable to nationwide public deployments, such as with electricity meters, but said LoRa, in unlicensed spectrum, retains a cost advantage, especially as NB-IoT has been pegged for multiple spectrum bands.

"We are pretty convinced it will be a big success, but there are some hurdles still," said Hebbelynck.

"We are eager to test NB-IoT, and to see how the ecosystem evolves. We still have questions – about how that ecosystem develops, and about such things as roaming. Because if you want to keep the cost of devices very low, you don't want them having to work in multiple frequency bands."

Proximus' national LoRa rollout, which started in August 2015, has reached 25 percent national coverage, as well as 50 percent population coverage. It covers urban centres, logistics areas, harbours, and airports.

It will achieve total national coverage by the year-end, with 500 more antennas deployed, said Hebbelynck, and Proximus will put focus in 2017 on network densification to achieve superior indoor and deep-indoor coverage, as well as to bring greater precision to location-based IoT services.

Proximus will also continue to stimulate the LoRa ecosystem, offering developers assistance with prototyping their products via its EnCo.io platform, as well as scaling and marketing them, said Hebbelynck.

Its LoRa use cases have so far focused on waste management for the public sector, and fuel management for private homes. Hebbelynck said Proximus is looking to develop LoRa-based IoT applications for energy, buildings, industry, parking, healthcare, utilities, and construction in 2017.

"The fact LoRa uses unlicensed spectrum, and cost and power consumption will remain much lower, even if it also has slightly lower data rates, means it may well be pushed towards very different use cases," said Hebbelynck.

He suggested operators who choose to back a single low-power wide-area technology will remove themselves from a part of the IoT market. "IoT is not just a market for telcos. Making choice between these technologies will take part of market away. A presence in the unlicensed market opens that other part up," he said.

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- Load Balancer



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**More:** [Click Here](#)

**Datasheet:** [Click Here](#)



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# Deutsche Telekom, Huawei get go-ahead to design CERN's European 'science cloud'

Below the Press Release from Deutsche Telekom Website - 23-Nov-2016

<https://www.telekom.com/en/media/media-information/enterprise-solutions/t-systems-select-to-establish-an-european-science-cloud-444488>

« QUOTE »

## T-Systems select to establish an European Science Cloud

- Concept of a hybrid cloud for high-performance and data-intensive use cases
- Services out of Open Telekom Cloud for ten of Europe's leading public research organizations



T-Systems has been awarded a frame contract for a joint Pre-Commercial Procurement (PCP), led by CERN, that covers the design, prototyping and pilot phase of the Helix Nebula Science Cloud. T-Systems, supported by its technology partner Huawei, will develop a solution based on its Open Telekom Cloud (OTC) public cloud service, that has been launched in March 2016 and meanwhile supports workloads from various leading enterprises, SMEs and public sector organizations.

This €5.3 million joint Pre-Commercial Procurement (PCP) tender, led by CERN, will establish a European hybrid cloud platform that will support high-performance, data-intensive scientific use-cases sponsored by 10 of Europe's leading public research organizations and co-funded by the European Commission. A total of 28 multinational companies, SMEs and public research organisations organizations from 12 countries submitted bids during the summer. Next to T-Systems and Huawei another three consortia are selected to develop their concepts for an European science cloud.

CERN is operating one of the **world's largest OpenStack private clouds with more than 7,000 servers and 190,000 cores**. As more and more research organizations start to use cloud services, demand is growing for dynamic capacity that can be transparently activated in a hybrid cloud. Open Telekom Cloud, operated by T-Systems and supported by Huawei, is based on the OpenStack open source architecture and facilitates the management and migration of data and resources between private and public clouds.

As part of an earlier procurement in 2016, CERN and T-Systems evaluated the capabilities of the Open Telekom Cloud in a 3-months pilot. "Following the extensive tests, it has become apparent, that Open Telekom Cloud can support the high-performance and data-intensive workloads required", summarizes Andreas Falkner, Vice President Open Telekom Cloud from T-Systems.

Next to CERN following research organizations plan to make use of the European Hybrid Cloud:

- Istituto Nazionale di Fisica Nucleare (INFN), Italy
- Deutsches Elektronen-Synchrotron (DESY), Germany
- Centre National de la Recherche Scientifique, (CNRS), France
- Karlsruher Institut für Technologie (KIT), Germany
- SURFsara, Netherlands
- Science and Technology Facilities Council (STFC), United Kingdom
- European Molecular Biology Laboratory (EMBL), Germany
- Institut de Física d'Altes Energies (IFAE), Spain
- European Synchrotron Radiation Facility (ESRF), France

This is part of the HNSciCloud project that has received funding from the European Union's Horizon 2020 Research and Innovation Programme.

About Deutsche Telekom: [Deutsche Telekom at a glance](#)

« UNQUOTE »

### EDITOR NOTE

T-Systems is the enterprise arm of Deutsche Telekom

About Deutsche Telekom (Annual Report 2015)

- Customers: 156M Mobile, 29M Fixed, 18M Broadband, 6.6M TV, 1.6M Managed Workplace Systems
- Markets: present in 50 countries (Germany, Europe & USA with own infrastructure)
- Revenue € 69.2M, Adjusted EBIT € 19.9M, Free Cash-Flow € 4.5M
- Employees: 225,000 (+ 8,600 trainees and cooperative degree students in Germany)

Is this news a top candidate for the « **SURPRISE of the Year 2016** » or just business as usual now?  
If we are not mistaken, IBM has a Cloud Competence Center in Geneva where CERN is located too!



# IBM Receives Cloud Company of the Year Award from Frost & Sullivan



Award highlights IBM's ability to deliver a complete set of cloud services enabling customers to build out their hybrid cloud environments

ARMONK, N.Y. - 20 Oct 2016: IBM (NYSE: IBM) announced today that it has received the 2016 Cloud Company of the Year Award from leading independent technology market research firm Frost & Sullivan. The Award acknowledges IBM's market leadership in delivering a complete and fully integrated stack of cloud services including IaaS, PaaS, and SaaS.

Particularly important to CIOs and IT managers, Frost & Sullivan highlights IBM's ability to support hybrid environments via the company's extensive portfolio of connectivity tools and capabilities that allow enterprises to easily create, deploy, and manage a flexible range of applications and microservices.

"This award recognizes the extraordinary range and depth of IBM's cloud services portfolio," said Don Boulia, VP of Cloud Strategy and Portfolio Management at IBM. "IBM Cloud provides clients with flexibility and choice when embracing hybrid solutions. They can continue driving value from their existing investments, while also gaining access to public, scalable infrastructure and services across our global footprint of data centers, including IBM Watson."

According to Lynda Stadtmueller, Vice President of Cloud Services, Stratecast|Frost & Sullivan, "IBM's cloud platform supports the concept of 'hybrid integration'—that is, a hybrid IT environment in which disparate applications and data are linked via a comprehensive integration platform, allowing the apps to share common management functionality and control." These capabilities enable customers to leverage Watson and analytics functionality made available through application programming interfaces (APIs) on Bluemix.

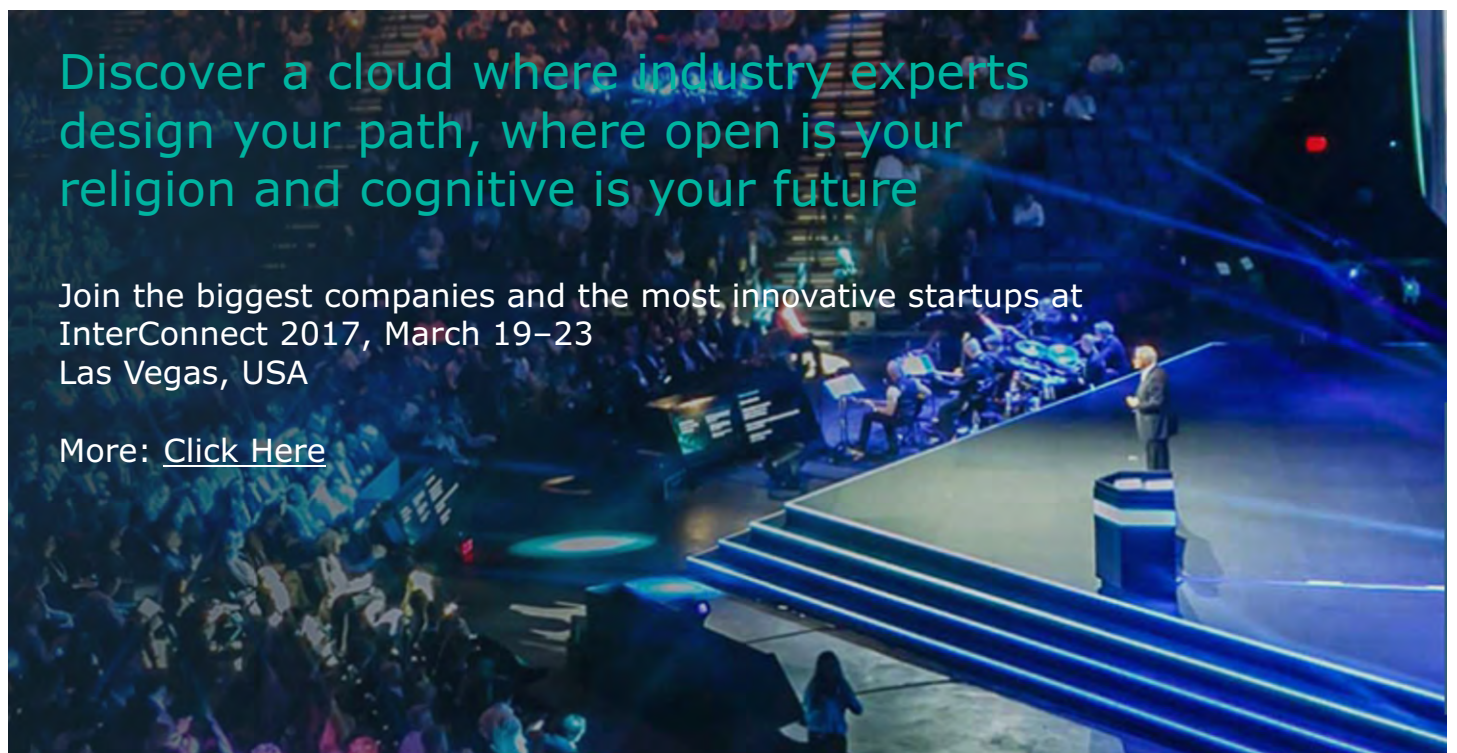
Stadtmueller also commented on the economic benefits of IBM Cloud, noting, "IBM Cloud offers a price-performance advantage over competitors due to its infrastructure configurations and service parameters—including a bare metal server option; single-tenant (private) compute and storage options; granular capacity selections for processing, memory, and network for public cloud units; and all-included technical support."

Competitors in the cloud market do not offer such a broad portfolio of integrated infrastructure, software, and platform solutions, according to Frost & Sullivan.

To win the Frost & Sullivan Company of the Year Award a company must demonstrate excellence in growth, innovation, and leadership. This kind of excellence typically translates into superior performance in three key areas: demand generation, brand development, and competitive positioning. These areas serve as the foundation of a company's future success and prepare it to deliver on the two criteria that define the Company of the Year Award—Visionary Innovation & Performance and Customer Impact.

## About IBM Cloud

For more information about cloud offerings from IBM, visit [www.ibm.com/cloud](http://www.ibm.com/cloud)

A photograph of a large audience at a conference, with a speaker on stage. The scene is dimly lit with blue and white stage lights. The audience is seated in rows, and the speaker is standing on a raised platform. The text is overlaid on the left side of the image.

Discover a cloud where industry experts design your path, where open is your religion and cognitive is your future

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# What is OPEN-O?

OPEN-O is an open source project backed by the **Linux Foundation** that enables **telecommunications and cable operators** to effectively deliver end-to-end services across **Network Functions Virtualization (NFV) Infrastructure**, as well as **Software Defined Network (SDN)** and legacy network services.

November 6, 2016 -- OPEN-O Bridges the Gap Between SDN and NFV with Release 1.0

Open source orchestration platform delivered its initial release on time, less than six months from the formation of the project in The Linux Foundation

BALTIMORE—November 7, 2016 – The OPEN-O Project, which is focused on enabling end-to-end service orchestration across network functions virtualization (NFV), software-defined networking (SDN), and legacy networks, today announced OPEN-O Release 1.0 at the MEF16 event underway this week in Baltimore.

OPEN-O Release 1.0, called "SUN," ushers in a new era of open orchestration, bridging the gap between virtualized functions and connectivity services for brownfield environments for both residential and enterprise virtualized customer premises equipment (vCPE) use cases.

"OPEN-O Release 1.0 was successfully delivered in only five months since the initial formation of the project," stated OPEN-O Executive Director Marc Cohn. "The global collaboration among leading operators and vendors has resulted in one of the fastest growing open source networking projects, with contributions from over 125 developers."

OPEN-O Technical Steering Committee Chair Chris Donley of Huawei noted, "OPEN-O is focused on delivering Any Service over Any Network by concentrating on real-world operator use cases. Our first release consists of over two million lines of code realizing a virtual CPE use case. This release gave us a chance to build our development and testing infrastructure and processes with a distributed development team spread around the world. It provides a strong foundation for continued development well into the future."

OPEN-O membership now stands at 13. Premier members include three major operators: China Mobile, China Telecom, and Hong Kong Telecom (HKT), along with Ericsson, GigaSpaces, Huawei, Intel, and ZTE. General members include Canonical, Cloudbase Solutions, InfoBlox, Raisecom, and Red Hat.

OPEN-O also announced that Xiaodong Duan, Director of the Department of Network Technology for China Mobile Research Institute, was elected the Chair of the OPEN-O Governing Board, joining Treasurer Amir Levy of GigaSpaces.

Xiaodong Duan commented: "It is my honor to serve the Chairman of the Governing Board in OPEN-O community. I would like to contribute all my experience to lead our community to achieve more accomplishments." He continued: "The Orchestrator is the key enabler for NFV/SDN network transformation. OPEN-O as an open source community is committed to build an open architecture and solution to enable end-to-end composite services across legacy networks and SDN / NFV infrastructure. As its first release, OPEN-O SUN release, which delivers the basic functionalities for service orchestration and operational automation for the targeted use cases, is a remarkable milestone."

*Member Quotes on OPEN-O Release 1.0*

## **Madam Yang, Deputy, China Mobile Research Institute**

"It is well accepted that SDN and NFV are the foundation of the next generation network. And China Mobile recognizes that orchestrator will be the core engine to enable such transformation and fulfill the ultimate promise of service agility and operational automation based on these new network capabilities. As the founding member of OPEN-O, China Mobile is very happy to see its SUN release delivered on time. And we will continue our contribution to the community in driving its prosperity and promote its adaptation internally in our labs and trial network."

## **Ms. Shaonai Shen, Deputy General Manager, Technology Department, China Telecom**

"OPEN-O is very productive to finish the release one in such a short time and provides a very attractive use case. Since China Telecom has announced CTNet2025 plan, we hope this unified open source Orchestration will play an important role in our network transformation process."

## **Martin Bäckström, VP and head of Technology, Industry Area Datacom, Ericsson**

"Ericsson promotes and contributes to several open source projects that bring value to the overall success of the telecom industry and create new value chains and business opportunities by leveraging NFV and SDN transformation. OPEN Orchestration along with OPNFV, ODL brings industry alignment in the areas of Ericsson 5G and Networked Society vision."

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# What is OPEN-O?

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## **Amir Levy, Director of Solution Architecture, GigaSpaces**

"Telecoms and other operators of large networks need a framework to bridge the gap between legacy and cloud-native networking architectures. Community members in the OPEN-O project are working to build that framework, and the open source model means we can move faster and reduce risk for everyone involved."

## **Kenneth Wong, Head of Business Processes Unit, HKT (Hong Kong Telecom)**

"HKT is a quadruple-play operator for fixed, mobile, broadband and video services, has undergone various phases of digital transformation. Our aim is to provide the best end-to-end customer experience supported with on-demand network resources management through open cloud technology running on an agile and cost-effective infrastructure."

"HKT fully supports OPEN-O as a strategic development initiative in accelerating the transformation processes and to enhance the end-to-end customer journey."

## **Hou Yuzhou, Vice President of Huawei's Global Technical Service**

"User demand for the real time, on demand, all online, DIY, social (ROADS) experience drives carrier operations to go digital. Open source and rapid standards development are essential for this transformation, while orchestration is key to service agility."

"The industry-leading OPEN-O Project provides a unified E2E SDN/NFV Service Orchestration platform to automate intelligent services. To help carriers transform their operations, Huawei has chosen a Top-Down approach: defining business use cases in the Open ROADS Community, developing a platform within the OPEN-O community, and introducing Cloud Open Labs for E2E system integration."

## **Yuan Yue, Director of SDN/NFV Open Source Strategy, ZTE**

"ZTE is pleased to see our code contributions and architecture be realized in OPEN-O Release 1.0, in just six months after the initial launch. ZTE believes that OPEN-O will successfully transform Telco operations and management in the era of SDN and NFV. ZTE is committed to strong support for OPEN-O, and already working on Release 2.0 planning with the community."

## **About the OPEN-O Project**

OPEN-O, an open source project hosted by The Linux Foundation, enables leading telecommunications, cable, and cloud operators end-to-end service orchestration over network functions virtualization (NFV) infrastructure, along with software-defined networks (SDN) and legacy networks. Several of the world's largest operators are participating in OPEN-O, joining many open networking innovators.

For more information on OPEN-O, please visit: <https://www.open-o.org/>

###

The Linux Foundation has registered trademarks and uses trademarks.

Linux is a registered trademark of Linus Torvalds.

# Oracle Buys Dyn

## Extends the World's Most Comprehensive Cloud Computing Platform with the Leading Cloud-based Internet Performance and Domain Name System (DNS) Solution

Redwood Shores, Calif. 21-Nov-2016

Oracle today announced that it has signed an agreement to acquire Dyn, the leading cloud-based Internet Performance and DNS provider that monitors, controls, and optimizes Internet applications and cloud services to deliver faster access, reduced page load times, and higher end-user satisfaction.

Dyn's solution is powered by a global network that drives 40 billion traffic optimization decisions daily for more than 3,500 enterprise customers, including preeminent digital brands such as Netflix, Twitter, Pfizer and CNBC. Adding Dyn's best-in-class DNS solution extends the Oracle cloud computing platform and provides enterprise customers with a one-stop shop for Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS).

"Oracle already offers enterprise-class IaaS and PaaS for companies building and running Internet applications and cloud services," said Thomas Kurian, President, Product Development, Oracle. "Dyn's immensely scalable and global DNS is a critical core component and a natural extension to our cloud computing platform."

"Oracle cloud customers will have unique access to Internet performance information that will help them optimize infrastructure costs, maximize application and website-driven revenue, and manage risk," said Kyle York, Chief Strategy Officer, Dyn. "We are excited to join Oracle and bring even more value to our customers as part of Oracle's cloud computing platform."

**More information about this announcement is available at** [www.oracle.com/dyn](http://www.oracle.com/dyn)



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## The Forrester Wave™:

### Hybrid Integration For Enterprises, Q4 2016

The 11 Providers That Matter Most And How They Stack Up



#### Evaluated Vendors: Vendor And Product Information And Selection Criteria

Vendor	Product evaluated
Dell Boomi	Dell Boomi AtomSphere
Fiorano	Fiorano Integration
IBM	IBM Application Integration Suite IBM Information Server
Informatica	Informatica Cloud PowerCenter v10.1 Big Data Management v10.1
Liaison Technologies	Liaison Alloy Platform
MuleSoft	Anypoint Platform
Oracle	Oracle Cloud Platform
Red Hat	Red Hat JBoss Fuse Red Hat JBoss A-MQ Red Hat JBoss Data Virtualization Red Hat OpenShift Container Platform 3Scale API Management by Red Hat
Software AG	DBP Integration Platform
TIBCO Software	TIBCO Application Integration
WSO2	WSO2 Integration Platform

#### Vendor inclusion criteria

- The vendor provides cloud, on-premises, and mixed deployment capabilities.
- The vendor addresses a broad set of integration scenarios and requirements.
- The vendor has enterprises using its products as a strategic enterprisewide platform.
- The vendor is considered in companies' shortlists as strategic solutions.

Full Report available from Forester Research Inc. [www.forrester.com](http://www.forrester.com)