NFV: Oracle's two-sided strategy

IT giant enters the NFV landscape in force
Summary

In brief

Oracle announced a comprehensive NFV (network functions virtualization) strategy during its latest OpenWorld event in October 2014. The strategy involves both top-down (application orchestration) and bottom-up (virtualization of network elements) components, with additional plans to introduce network/service orchestration and end-to-end orchestration. Oracle's strength in the IT domain, its product-led strategy, commitment to the telecoms vertical, and open standards are expected to create considerable opportunities in the NFV environment. Oracle's NFV strategy announcement is expected to influence the whole telecoms value chain, including infrastructure vendors, systems integrators, and telecom operators.

Ovum view

- **Oracle's NFV plans are comprehensive.** The vendor has announced virtualization of existing network components, a cohesive orchestration strategy, and plans to introduce analytics in its NFV offering.
- **Oracle's product-led strategy matters.** In contrast to infrastructure vendors who aim to offer services in addition to NFV products, Oracle plans to only develop products for the telecoms vertical.
- **Oracle is committed to open standards.** Oracle offers hardened versions of Linux and OpenStack and supports open source tools related to NFV, including KVM (Kernel-based Virtual Machine).
- **Oracle has significant experience in the cloud.** The communications business unit may take advantage of expertise from other Oracle departments which may have already built large-scale cloud computing systems. This may be expertise that very few infrastructure vendors possess.
- **Analytics matter.** In the NFV domain, network and subscriber analytics are critical for the operation of a fully virtualized network. Oracle's dominance in subscriber databases, Big Data analytics, and data storage may be a unique selling point that positions the vendor ahead of its competition.

Recommendations

- Telecom operators that are assessing a potential NFV strategy should consider Oracle, especially if BSS/OSS components from the vendor are already in place.
- Oracle Communications Application Orchestrator could be a low-risk entry in NFV for telecom operators, who may choose to bundle it with a virtualized network component from the company, e.g. a PCRF, DSR, or SBC.
- Telecom systems integrators should look to partner with Oracle and take advantage of its product-led strategy and commitment to open source to improve their business position.
Market positioning

Oracle enters NFV during OpenWorld

Oracle announced a comprehensive NFV strategy during its flagship annual event – Oracle OpenWorld – which took place during September 29–October 2, 2014. Although the firm has previously announced several parts of its NFV strategy, Oracle OpenWorld announcements were the first where both a top-down and bottom-up approach were introduced, outlining the vendor’s grand plans for the telecoms vertical. The telecoms vertical is one of many for the IT giant but an important one since its existing strength in BSS/OSS may provide considerable opportunities for growth.

Oracle’s top-down NFV strategy is to introduce NFV extensions and functionality in the OSS/BSS layer, where it is very successful today. On the other hand, its bottom-up approach is to virtualize network elements (e.g. Diameter gateways, policy functions, or session border controllers), starting from the bottom of the telecoms stack and moving upwards. Oracle is one of the few vendors to be able to start from the physical infrastructure layer and extend all the way up to customer database technology.

NFV strategy

As outlined above, Oracle’s strategy is both top-down and bottom-up. BSS and OSS products are going to be upgraded to introduce NFV optimizations, while existing telecom infrastructure components will be virtualized. Figure 1 outlines Oracle's overall NFV strategy with the most important element being the Oracle Communications Network Services Orchestrator. The following sections outline each individual component in more detail.

Figure 1: Oracle’s NFV strategy

Source: Oracle

BSS/OSS

BSS and OSS products will be upgraded to introduce NFV optimization, which will be necessary to introduce virtualized components in existing networks. As both of these components are vital for the operation and success of NFV-powered networks, it is necessary for Oracle to offer these
optimizations. A vital component for the new OSS suite will be the Network/Service Orchestrator, which is outlined below.

**Oracle orchestrators**

Oracle’s activities in orchestration fall under two main categories:

- **Oracle Communications Application Orchestrator (OCAS):** Essentially a VNF manager, the OCAS manages Oracle’s virtualized elements. The OCAS is ready for market as of 3Q14.

- **Oracle Communications Network Services Orchestrator (NSO):** The NSO will act as a centralized orchestrator, which will manage infrastructure and VNFs and will be able to create new services. The NSO essentially resembles a network functions virtualization orchestrator (NFVo) which interfaces with several network domains, including OSS, BSS, VNFs, and NFV infrastructure. The launch date for the NSO has not yet been announced.

**Analytics**

Oracle’s near-real-time analytics platform will offer functionality critical to NFV:

- Network analytics will inform the orchestrator of possible problems or new requirements so that action is taken in due time.

- Subscriber analytics will allow for quicker marketing decisions, thus allowing NFV infrastructure to adapt to user requirements much quicker than traditional approaches.

Analytics is a major strength for Oracle in the NFV domain, something that very few other vendors can offer, accentuated by the fact that Oracle is a dominant force in the realm of subscriber databases and telco IT systems. Discussions in the ETSI NFV Industry Specification Group (ISG) hint that analytics will be a critical and necessary component of advanced NFV-powered networks, since network decisions will need to take into account several data streams, some of which may not even be visible – or present – today.

A further advantage of Oracle may be its experience and footprint with network policy, which may be considered as the governance entity that impacts decisions in the network. Analytics may provide the data source from the network, while policy will take advantage of this data to enforce network or marketing-related decisions. Its experience with policy (through the Tekelec acquisition) may become a further advantage for Oracle in NFV.

**Oracle PNFs and VNFs**

Several Oracle network components have already been virtualized, including Acme Packet’s session border controllers (SBCs), Tekelec’s Diameter Signaling Router (DSR), Tekelec’s Policy and Charging Resource Function (PCRF), and other components that have been developed in-house or recently acquired. Oracle’s PCRF and DSR are already available in proof-of-concept implementations as VNFs using Oracle VM (OVM) and VMWare, while the vendor is also developing these components for KVM.

**Oracle OpenStack**

Oracle offers hardened versions of OpenStack and Linux, which can be used for NFV. Oracle launched its OpenStack product in September 2014, stating its commitment to open source and open standards. Oracle OpenStack can run on Oracle Linux, Solaris, Windows, and non-Oracle Linux distributions. Oracle’s ability to offer Linux, OpenStack, and a variety of NFV functionality on top may
be regarded as a significant strength, especially if such an end-to-end product is supported by open standards which is currently a hot topic in the telecoms industry.

Results

NFV is a considerable opportunity for Oracle

Although it is too early to present results for Oracle in the NFV market, the value chain, particularly network operators, has reacted positively to the news. Larry Ellison (Oracle Executive Chairman and CTO) outlined a focus in portability between public and private clouds for Oracle’s products and this can only provide added benefits if applied to the telecoms vertical and NFV. The market is still expecting to see the launch of – and more details for – Oracle’s NSO and end-to-end orchestration, which will provide more visibility of the company’s long-term strategy. Regardless of the time and content of these future announcements, Oracle’s commitment to the telecoms market and open standards is expected to provide growth for the vendor.

Oracle has also integrated all teams from previous acquisitions (notably Acme Packet and Tekelec) who are working together to provide a consistent virtualization layer and OSS functionality. Oracle’s Communications Global Business Unit – the department that is focusing on the telecoms vertical – can take advantage of the vast cloud knowledge the vendor possesses to solve problems for which other competitors lack expertise.

Strategic outlook

Product-led strategy

Oracle’s NFV strategy can be compared with that of other vendors, particularly ones in the IT domain, but the IT giant offers two distinct advantages that few others companies can match.

Oracle’s overall strategy is product – rather than service – led. This is also applicable in the telecoms vertical, where NFV components will be in the form of products, rather than services. There are two considerations to make in the context of NFV:

- A product-led strategy necessitates top expertise and functionality in most components. Oracle's commitment to the telecoms vertical and open source tools means that the vendor may have a good opportunity to become a leader in VNFs, NFV orchestrators, and end-to-end systems.
- The telecom operator community is expected to require considerable help for the integration of NFV and SDN functionality in their networks. Oracle is not expected to offer services for NFV, but already has a very wide partner network, which includes systems integrators. Oracle may also announce preferred partners for systems integration, which may be global system integrators. This may further increase Oracle's positioning in the NFV race, where a systems integrator using best-of-breed components from Oracle may prove to be one of the most successful deployment models for NFV.
Analytics

Oracle's analytics is another unique selling point for its NFV strategy. Network and subscriber analytics will be critical for the success of any NFV network, and Oracle has considerable expertise in data storage, customer databases, Big Data, analytics, and management of very large datasets, which are a de facto standard in the telecoms domain. Its dominance in the subscriber database market may provide a crucial advantage over competition, and the availability of near-real-time analytics may be a make-or-break element of an NFV pitch.

The announcement of the NSO and Oracle's end-to-end orchestration will provide more visibility into the functionality and positioning of analytics, but Ovum expects that the IT vendor will use this as a considerable advantage to win NFV business, perhaps not in the short term, but in advanced NFV network requirements.

Appendix

Methodology

The material and analysis used for this case study have been collected during Oracle's OpenWorld conference, where Ovum met face-to-face with key Communications Global Business Group executives.

Further reading

Oracle Cloud: Ambitions and Challenges, IT0022-000163 (September 2014)
Oracle PaaS Cloud: Ambition and Expansion, IT0022-000173 (September 2014)
Segmenting Software-centric Networks: SDN and NFV, TE008-001435 (April 2014)
"SDN and NFV update: Value chain disruption?" IT0024-000069 (October 2013)

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