



Simplify NFVI Deployment to Accelerate Network Transformation of Telecom Operator

Intel® Rack Scale Design (Intel® RSD) helps China Telecom build flexible, easier-to-manage NFVI



Intel® RSD can flexibly and efficiently schedule resource pools, and effectively reduce the complexity of NFVI deployment, providing a solid foundation for operators to transform their networks and implement cloud network deployment.

To achieve the strategic objective of becoming a leading integrated intelligent information service operator, China Telecom* is actively promoting the network transformation and introducing NFVI (Network Function Virtualization Infrastructure) so as to achieve the dynamic management and scheduling of network resources through cloud deployment. In addition, it joins hands with Intel and other vendors to address such issues as equipment selection and scale deployment of NFVI through Intel® Rack Scale Design (Intel® RSD).

About Intel® Rack Scale Design (Intel® RSD)

Intel® RSD is a logical architecture for decoupling, pooling and refactoring of compute, storage and network resources. It can effectively improve the efficiency of resource pool adoption through industry standard-based API management interfaces that are extended for dynamic pooled resource allocation and release management. The first industry-standard framework for disaggregating and dynamically managing compute, storage, and network for more efficient hyper-scale deployment and utilization of data center assets."

Intel® RSD implementations represent the next generation of Software Defined Infrastructure that can be dynamically provisioned across compute, network and storage resources. The fundamental premise for an Intel® RSD-based solution is the customers' ability to "right-size" their end-to-end infrastructure needs according to anticipated workload performance and capacity requirements, across pooled resources.

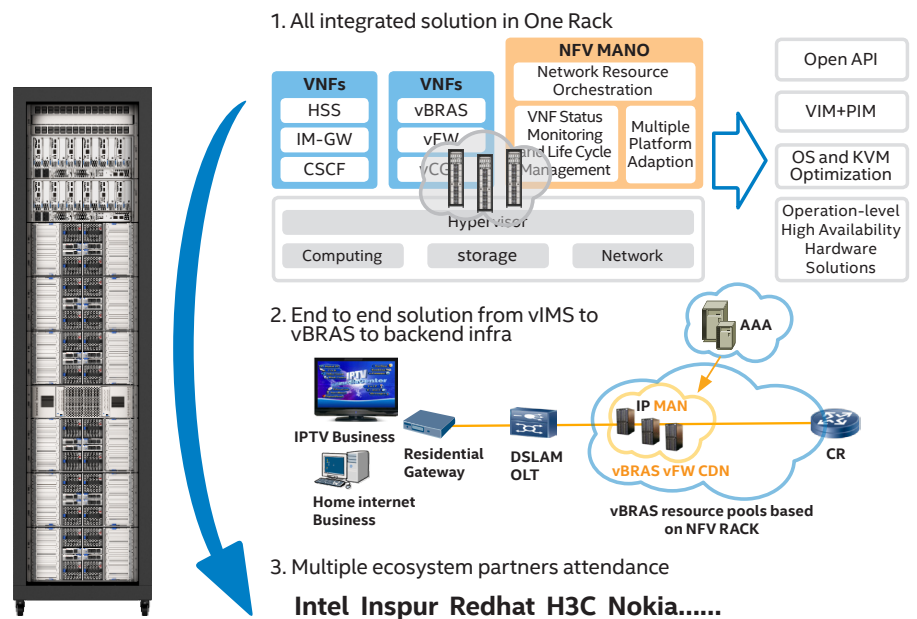


Diagram 1: Integrated solution for Intel® RSD architecture single carrier rack

Intel® RSD-based NFVI DEMO in China Telecom

As one of the three major operators in China, China Telecom faces the following challenges in network transformation:

- Rigid and closed network deployment, high dependency on proprietary devices, and lack of scalability and flexibility.
- Business silo; new features need research from scratch, resulting in equipment redundancy and fragmentation, which is difficult to be integrated and cannot meet the needs of fast and flexible business deployment.
- Little commonality between equipment vendors; complex planning, deployment, and operation and maintenance, putting great pressure on cost control.

The use of NFV technology for network transformation and the implementation of cloud deployment will help solve these problems. NFV application scenarios require a hyper-scale rack professional equipment and carrier-class NFVI solution, and the introduction of Intel® RSD will promote the industry standard for decoupling and dynamic management of computing, storage and network functions. The Intel® RSD-based NFVI DEMO jointly implemented by China Telecom and Intel and other manufacturers is a good practice of this industry standard. Consisting of NFVI RACK, resource pool management, multiple solid/mobile virtualized network elements, it is the industry's first time to achieve the overall delivery capacity of NFV hardware and cloud resources.

China Telecom's Intel®RSD-based NFVI DEMO shows many application advantages in the preliminary application evaluation:

- Flexibly schedules resource pools and increases or decreases equipment through use cases according to different NFV application scenarios, so as to simplify capacity reduction/expansion and the function increase/decrease process.
- Selects resource pools based on application scenarios, so as to improve application performance.
- Provides open management standards, and simplifies the management of equipment from multiple vendors.

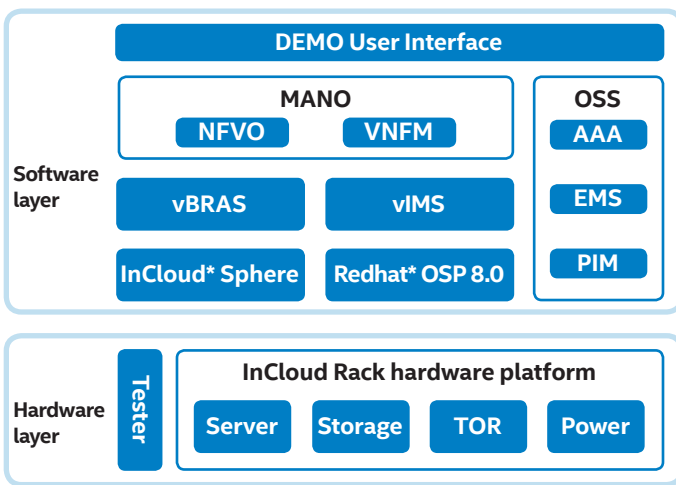


Diagram 2: Intel® RSD architecture-based vBRAS end-to-end solution

LESSON AND LEARN

The DEMO environment jointly built by China Telecom and Intel and many partner manufacturers has evaluated the integrated carrying capacity of NFV Rack with vIMS as an example, vBRAS based broadband user access and experience and other scenarios, and achieved satisfactory results. It is verified that Intel® RSD not only provides carrier-class reference solution in terms of deployment complexity, carrying capacity, flexibility, reliability and high availability, but is also an important attempt for operators to implement cloud deployment and promote network transformation. In addition to China Telecom, Intel® RSD has been verified by cases of a number of operators in Japan and Australia, providing useful reference for its future commercial deployment.

Based on these application advantages, the NFVI solution in this Demo can build stronger computing, storage and network resource pools in a single rack, providing better adaptation and greater utilization and flexibility for different application requirements of NFV. Meanwhile, through the open Redfish™ API industry standard specification based on DMTF, users can manage equipment from multiple vendors in a unified and efficient manner, thus simplifying and quickening NFVI deployment, and providing support for end-to-end network transformation from the underlying infrastructure to the upper cloud services.

Chinese telecommunications experts said that the Intel® RSD-based NFVI solution will bring the following values to China Telecom:

- Verify the problems of equipment selection and scale deployment of NFVI in operator network transformation;
- Create a hierarchical decoupling infrastructure environment to the operator, providing the rapid expansion capacity of the resource pool;
- Help verify the concepts of NFVI overall delivery and overall operation & maintenance, and provide unified management of physical/virtual resources based on the delivery of computing, storage and network nodes.
- Provide integrated carrying capacity for a variety of VNF network elements and its fixed/mobile business.

Continuously evolve based on an open ecosystem

The value of Intel® RSD has been initially validated in China Telecom's NFVI, but more commercial deployments still require a lot of practice and validation work, which needs joint efforts of more operators and equipment vendors.

The "Intel Network Builders" partner program is intended to pool the strength of the entire industry chain to build an open ecosystem that promotes the development and application of technologies and solutions favorable for network transformation, allowing more network software and hardware providers to participate in deeper collaboration to accelerate network transformation of telecom operators. The program will also play a significant role in promoting application optimization and evolution of Intel® RSD in NFVI.