DELL TELECOM INFRASTRUCTURE BLOCKS FOR RED HAT 2.0

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CONTEXT

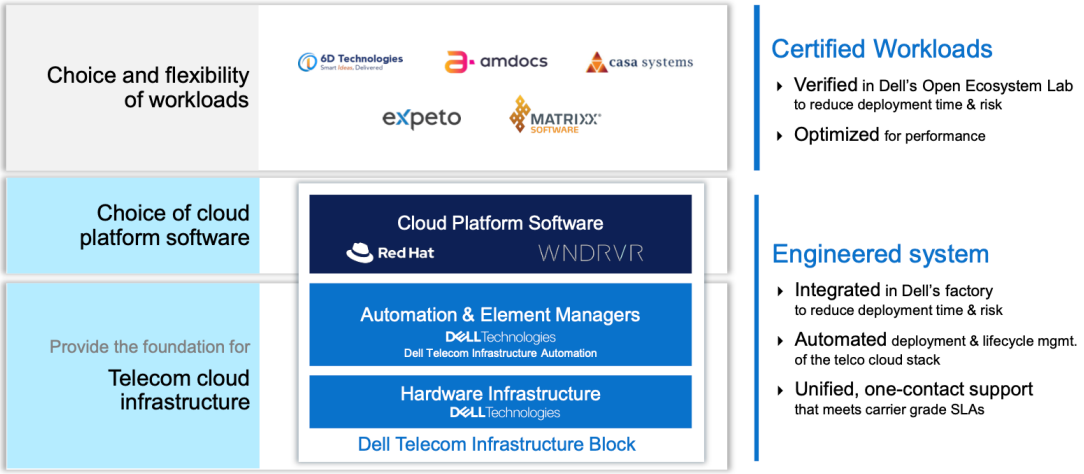
Dell Technologies has updated its Dell Telecom Infrastructure Blocks for Red Hat, which is a strategic solution offered by Dell Technologies, specifically designed to aid telecommunications operators in deploying and scaling out modern telecom networks, particularly for 5G. These blocks are critical components in simplifying the implementation of cloud-native network infrastructures.

BACKGROUND

Building and deploying a 5G core network is complex, involving numerous components like access and mobility management functions (AMFs), session management functions (SMFs), and more. Transitioning from a traditional vendor-locked architecture to an open, multi-vendor, cloud-based 5G architecture can be overwhelming for Communication Service Providers (CSPs).

At the 2023 Mobile World Congress, Dell Technologies introduced its Dell Telecom Infrastructure Blocks for Red Hat to simplify this transition.

Dell Telecom Infrastructure Blocks



The key benefits of the infrastructure blocks for Red Hat include:

1. **Simplification of 5G Network Transformation**: Dell Telecom Infrastructure Blocks aims to reduce the complexity of building 5G networks by providing pre-loaded, pre-integrated, and pre-validated cloud platform software on Dell hardware, delivered as a 5G-ready system. This approach takes the guesswork out of compatibility and support issues, offering a unified architecture and a single point of contact for support.

2. **Dell Telecom Infrastructure Blocks for Red Hat**: These blocks are tailored for 5G core networks and RANs, co-engineered by Dell Technologies and Red Hat. They provide a cloud foundation for 5G Core workloads running Red Hat OpenShift on bare metal, with all hardware and software tested, validated, and integrated at Dell's factories.

3. **Automation and Resource Pooling**: With these infrastructure blocks, CSPs can utilize automation to pool infrastructure resources and quickly reconfigure hardware and software to meet changing workload requirements. This flexibility is crucial in the dynamic 5G environment.

4. **New Lab Services for Performance Validation**: Dell introduced lab services to validate the operation and performance of 5G Core workloads on these infrastructure blocks, helping CSPs migrate from vertical network architectures to a more unified, horizontal cloud architecture. This shift can improve infrastructure utilization rates, reduce costs, and lower power consumption.

5. **Benefits of Infrastructure Blocks**: Validation, automation, and integration are the three primary advantages of the solution. Dell and Red Hat ensure the operability of the hardware and software stack, provide automation tools for easy deployment and configuration, and continuously integrate new software features to maintain reliability and reduce ongoing integration testing.

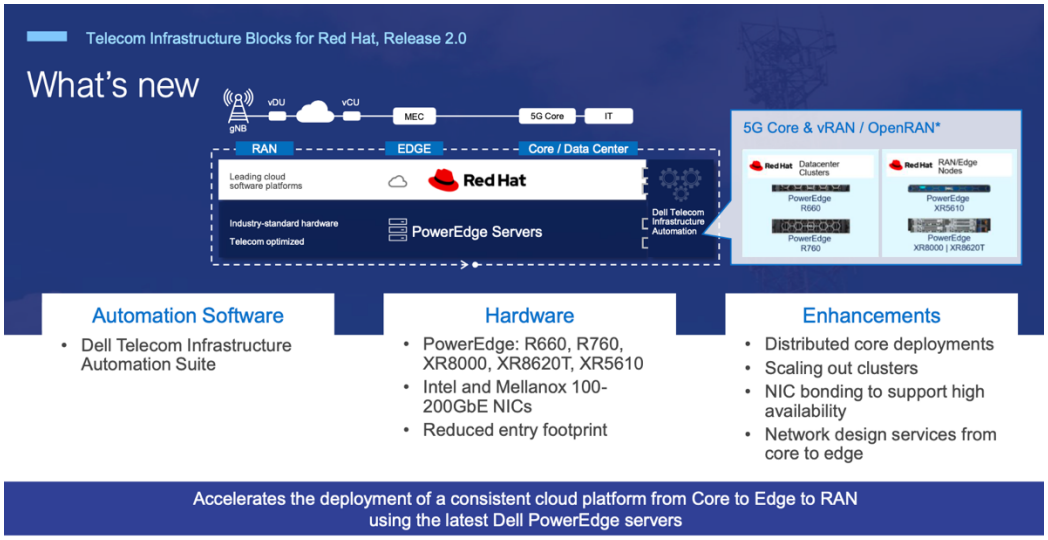
6. **Single Service and Support Point**: Dell Technologies remains CSPs' sole service and support contact, offering 24/7 technical support that aligns with carrier-grade SLAs. This single point of contact eliminates the complexity of dealing with multiple vendors.

7. **Ease of Deployment and Management**: Dell's Telecom Infrastructure Blocks for Red Hat simplify the building, deployment, management, and maintenance of 5G networks. They offer telco-grade reliability, easy lifecycle management, and robust support for open-source technology.

Dell's Telecom Infrastructure Blocks for Red Hat provide a streamlined, efficient, and reliable solution for CSPs facing the complexities of deploying 5G networks. This approach marks a significant step towards simplifying 5G network deployment and embracing open-source technology in the telecom industry.

TELECOM INFRASTRUCTURE BLOCKS FOR RED HAT 2.0

Dell has updated its Telecom Infrastructure Blocks for Red Hat with a number of significant advancements to aid in the the deployment and scalability of modern telecom networks, particularly for 5G.



Here are the key new features and improvements:

1. **Integration with Dell Telecom Infrastructure Automation Suite**: One of the significant new features is the integration of the Dell Telecom Infrastructure Automation Suite. This suite provides advanced automation capabilities for server infrastructure deployment and lifecycle management. It simplifies processes, ensuring consistent deployment and upgrades, and aligns with best practices derived from Dell's integration testing with cloud platform partners.

2. **Declarative Automation**: The Automation Suite uses declarative automation to streamline deployment. This approach significantly reduces the time and skillsets required to ensure interoperability and manage continuous updates and upgrades across the network.

3. **Extensible Automation Framework with Rich APIs**: The Telecom Automation Suite includes an extensible automation framework complemented by rich APIs. These APIs can be leveraged for integration into various systems like service management orchestration, operational and business support systems, or other applications. This flexibility allows for a more tailored and efficient integration into existing telecom infrastructures.

4. **Aggregated Infrastructure Telemetry**: The suite aggregates infrastructure telemetry from all deployed Infrastructure Blocks across the network. This data is crucial for AIOps applications that streamline Day 2 operations, enhancing network management's overall efficiency and responsiveness.

5. **Enhanced Server Performance with Dell PowerEdge 16G Servers**: The inclusion of Dell PowerEdge 16G servers, equipped with 4th Generation Intel Xeon Scalable processors and vRAN Boost technology, marks a significant upgrade, offering up to 2x performance improvement in vRAN applications and 1.88x performance in user plane functions over the previous generation. This improvement is critical for handling the high-performance demands of modern 5G networks.

6. **Energy-Efficient Features and NEBS 3 Compliance**: The new server models include energy-efficient features that improve cooling and reduce energy costs. Additionally, the PowerEdge XR8000 chassis is NEBS 3 compliant and designed for the far edge of the network, offering flexibility in deployment locations and conditions.

7. **Future-Proof Design**: The PowerEdge XR8000 chassis supports multiple generations of processors, simplifying the process of staying up-to-date with the latest technology. This design ensures the longevity and adaptability of the infrastructure, allowing telecom operators to keep pace with evolving technology without frequent hardware replacements.

8. **Simplified Network Design and Deployment**: The overall design of the updated Telecom Infrastructure Blocks is aimed at simplifying the design, deployment, and maintenance of telecom networks. This simplification is particularly beneficial for deploying virtual network functions in core networks, modernizing networks with Open RAN, or deploying new 5G applications.

These updates to the Dell Telecom Infrastructure Blocks for Red Hat reflect a comprehensive approach to addressing the challenges faced by telecom operators in deploying and scaling 5G networks. By integrating advanced automation, enhanced server technology, and a focus on energy efficiency and future-proofing, Dell

Technologies provides a robust and streamlined solution for modern telecom network infrastructures.

ANALYSIS

The updates to the Dell Telecom Infrastructure Blocks for Red Hat are a significant stride towards addressing the complex needs of modern telecom networks. Integrating these advanced technologies and methodologies signals a marked shift in how telecom operators can approach network deployment and management, especially in a cloud-native, 5G-driven landscape.

By leveraging declarative automation, Dell Technologies acknowledges and directly addresses a core challenge in telecom: the need for rapid, reliable, and repeatable deployment and maintenance processes. This approach significantly reduces the dependency on highly specialized skill sets, which can be a bottleneck in deploying and upgrading network infrastructures.

Incorporating Dell PowerEdge 16G servers equipped with 4th Gen Intel Xeon Scalable processors is a testament to Dell's commitment to providing cutting-edge performance. The reported performance improvements in vRAN applications and user plane functions are not just incremental but transformative. This enhancement is crucial for telecom operators under constant pressure to handle increasing data volumes and deliver high-speed, low-latency services demanded by 5G applications.

The attention given to energy efficiency in the new server models is particularly commendable. As the industry moves towards more sustainable practices, Dell's efforts to improve cooling and reduce energy costs align well with broader environmental goals. Moreover, the NEBS 3 compliance of the PowerEdge XR8000 chassis clearly indicates that these solutions are designed for real-world, rugged deployment scenarios, which are commonplace in telecom infrastructures.

The forward-thinking design of the PowerEdge XR8000 chassis, supporting multiple generations of processors, is a strategic move, showing an understanding of the telecom industry's need for long-term, scalable solutions. Future-proofing is essential in an industry where technology evolves rapidly, and Dell's approach mitigates the risk of obsolescence, ensuring a more sustainable investment for telecom operators.

Dell Telecom Infrastructure Blocks for Red Hat 2.0 represents a robust response to the challenges faced in modern telecom network deployment and management. This solution is not just about technological advancement but practicality, efficiency, and sustainability. It addresses the critical needs of speed, flexibility, and scalability while keeping an eye on the future. For telecom operators looking to deploy or upgrade their 5G networks, this solution offers a comprehensive, forward-thinking approach that could very well set a new standard in the industry.