FROST & SULLIVAN

BEST PRACTICES

AWARDS

FROST & SULLIVAN

2020

BEST
PRACTICES
AWARD

Red Hat

2020 GLOBAL
OSS AND BSS TRANSFORMATION
CUSTOMER VALUE LEADERSHIP AWARD

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each Award category before determining the final Award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Red Hat excels in many of the criteria in the OSS and BSS Transformation space.

AWARD CRITERIA

| Business Impact	Customer Impact
Financial Performance	Price/Performance Value
Customer Acquisition	Customer Purchase Experience
Operational Efficiency	Customer Ownership Experience
Growth Potential	Customer Service Experience
Human Capital	Brand Equity

Best Practices Awards Analysis for Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, integration, application and data storage services, and Kubernetes technologies. Red Hat helps customers securely integrate new and existing IT applications, develop cloud-native applications, standardize on its industry-leading operating system, and automate, secure, and manage complex environments. The exhibit below shows Red Hat's comprehensive product portfolio.

"By delivering the open hybrid cloud promise to the market, Red Hat has established itself as a preferred provider of IT technologies for OSS and BSS transformation."

- Vikrant Gandhi, Senior Industry Director
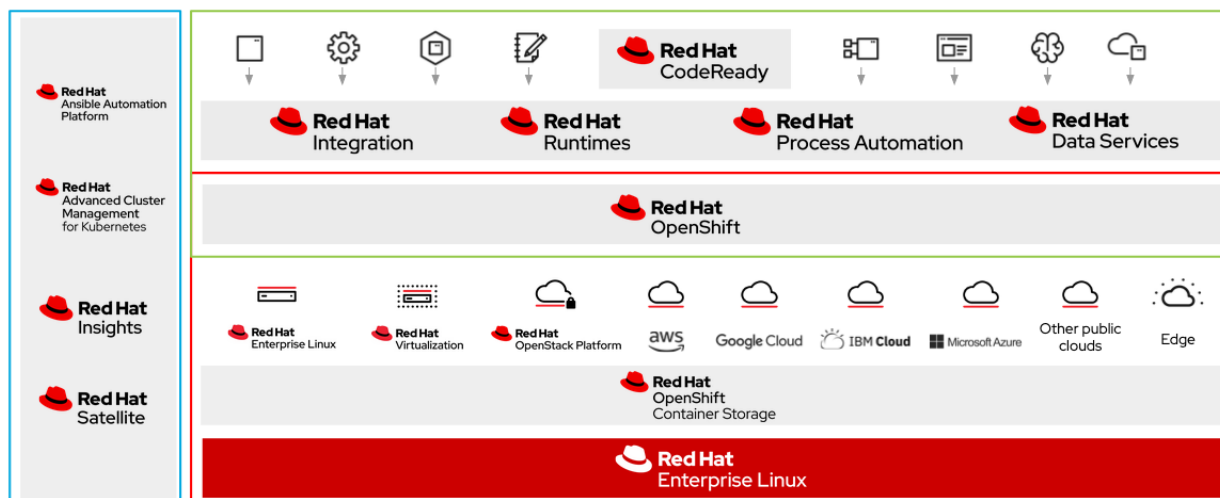
Frost & Sullivan's research indicates that Red Hat is the preferred technology provider for transformative OSS and BSS deployments that have helped communication service providers (CSPs) successfully manage their evolution to customer-centric digital service providers (DSPs[1]).

The key competitive differentiators for Red Hat as identified by Frost & Sullivan are described below.

Deployment Flexibility

 CSP interest in hybrid cloud deployments is on the rise[2]. For instance, public-cloud based OSS and BSS solutions are increasingly being used to support 5G use cases. However, strict data governance regulations have tempered CSP reliance on public cloud platforms for certain data processing functions. CSPs, for example, may elect to process computing-intensive AI workloads in on premises AI-optimized GPUs, since the public cloud may not always be a cost-effective option.

In this environment, Red Hat delivers flexible options for CSPs to run critical workloads on cloud environments of their choice. With Red Hat® OpenShift® Container Platform, CSPs have access to their preferred cloud platform - without having to modify application code to run in each individual cloud environment. Customers can manage and scale application functions independently as well. For example, data management processes can leverage Red Hat Integration services, while automation or business rules can be supported by Red Hat Process Automation products. Red Hat has a large community of innovative ecosystem partners that deliver powerful tools to customers to take advantage of hybrid cloud deployments.

---

[1] *In telecom, a DSP delivers an integrated set of communication and media services that have traditionally been delivered by over-the-top or web-based service providers. While a DSP will continue to offer communications connectivity services, it will also expand its portfolio of services and add value to the connection, in part by building an extensive partner ecosystem and by taking steps, such as adopting open networking technologies and practices.*

[2] *Public and private cloud are evolving to hybrid clouds, enabled by containers & Kubernetes. Hybrid cloud includes edge computing. Some portion of the application will execute at the edge.*

Ease of Product Lifecycle Management

CSPs often struggle with IT modernization projects due to a lack of internal skills related to product integration, testing, and upgrades. The inability to upgrade legacy OSS and BSS systems with ease contributes to prolonged implementation cycles, instigating major impediments for OSS and BSS transformation.

Red Hat OpenShift is an integrated platform that includes more secure, validated content and services from a wide partner ecosystem. Frost & Sullivan appreciates the way that this solution takes the burden away from CSPs that would otherwise have to deal with the complex challenge of assembling these technologies and components. Red Hat's offerings include Red Hat OpenShift Dedicated, which is a fully managed service of Red Hat OpenShift on Amazon Web Services (AWS) and Google Cloud. Through managed services, Red Hat makes it extremely easy for customers to use its products. Importantly, managed services have helped Red Hat learn how to make its products simple to deploy and consume, which has translated into an optimized delivery process.

With Red Hat, CSPs can future-proof their critical network IT deployments in an efficient and economical manner, which prioritizes security and privacy. For example, CSPs can transfer their licenses from on-premises to public cloud (if needed). The company focuses on optimizing every aspect of the customer experience, including purchasing, performance, customer support, third-party integrations, and product upgrades as part of a comprehensive customer experience strategy.

Automated and Streamlined Customer Operations

Rapid service orchestration for operational agility, dynamic service resource provisioning, and AI-enabled network management are all important for 5G success. The requirements of data-driven, real-time service delivery can only be met by adopting cloud-native solutions built using a microservices framework and continuous integration/continuous development (CI/CD) approach. Red Hat offers more than 150 certified Operators[3] across different categories including networking, security, AI/ML, enterprise resource planning, policy enforcement, network management and policy enforcement that have been on-boarded on top of Red Hat OpenShift with embedded automation. By enabling an ecosystem of strategic partners to deliver automation with their products, Red Hat offers a powerful mechanism for streamlining Day 2 software operations and the applications that CSPs deploy on their infrastructure.

Red Hat's products are well-suited to support the migration of a technologically advanced, cloud-native OSS and BSS architecture. CSPs can prioritize new service models that they introduce and experiment with business models to fine-tune their service offerings. A vast experience in running solutions, coupled with the ability to integrate numerous open source projects as consumable offers, has enabled Red Hat to reduce the burden of software lifecycle management for CSPs.

---

[3] *An Operator is a method of packaging, deploying and managing a Kubernetes-native application. An Operator builds on Kubernetes abstractions to automate the entire lifecycle of the software it manages. Because they extend Kubernetes, Operators provide application-specific automation in terms familiar to a large and growing community of Red Hat users and partners.*

Community of Innovation

Red Hat nurtures a world-class community of users, customers, and partners and is a leading contributor to help drive open-source platform-as-a-service (PaaS) innovation. For example, Red Hat hosts the Red Hat Summit and the OpenShift Commons events to drive cross-industry collaboration and learning opportunities in open source solutions, technologies, and development. By participating in these events, CSPs learn how their peers and enterprise customers are innovating with Red Hat products and how to apply these best practices within their own environments. A focus on open source has allowed Red Hat and its partners to collaborate among a larger community of technology innovators as compared to closed-source models.

Customer Acquisition and Support Strategy

Red Hat products are deployed across leading, global Telco environments to support 5G, IoT and AI initiatives. Red Hat strives to help CSPs in all areas of their business that leverage modern technologies to optimize operations and support new, innovative business processes.

Red Hat caters to a diverse set of customer needs by proactively engaging clients via company events, conferences, online webinars, and partner training sessions. The push towards telecommunications network functions virtualization (NFV) and cloud native network functions has given rise to greater need for collaboration among vendors to implement CSP systems (for example, implementing solutions from multiple vendors to support virtual radio access network deployments). Frost & Sullivan believes that Red Hat's strong relationships with leading cloud providers, systems integrators, ISVs, and CSPs enable the company to play a central role in ensuring collaboration among vendors over the course of next-generation CSP deployments. By virtue of its unique open source development model and its delivery of integrated, end-to-end solutions with its broad open ecosystem, the company is extremely well-positioned to capitalize on emerging growth opportunities in the global OSS and BSS transformation market.

> *""Red Hat's products are deployed across leading, global Telco environments for 5G, IoT and AI initiatives. The diversity of use cases supported by Red Hat is a clear testament to the completeness and configurability of its products."*
>
> *- Vikrant Gandhi, Senior Industry Director*

A Proven Approach to OSS and BSS Transformation

Red Hat's products have helped global operator groups and regional CSPs consolidate their disparate OSS and BSS solutions and realize the value of network and operations data.

Some examples of how Red Hat's products are used for transforming CSPs' operations and business support functions include:

- transforming digital channels to increase efficiencies and open new revenue opportunities;

- improving network failure and compliance remediation;

- decreasing time to deploy newer technologies;

- developing a highly scalable next-generation platform for IoT solutions;

- delivering hands-on training to help customers' build skills and confidence with Red Hat platforms;

- reducing IT costs with open source software;

- building a modern cloud infrastructure for agile, responsive NFV and cloud-native networks;

- automating critical network security operations;

- developing resilient enterprise-class cloud services to help accelerate customers' digital transformation; and

- modernizing the IT infrastructure through microservices architecture and DevOps to improve agility of application development and delivery.

Frost & Sullivan analysts conclude that the diversity of OSS and BSS use cases supported by Red Hat is a clear testament to the completeness and flexibility of its products.

Conclusion

Cloud-native approaches are fundamental to OSS and BSS transformation. Red Hat, with a comprehensive portfolio of solutions to develop, connect, optimize and automate OSS and BSS, remains the 'go-to' company for next-generation OSS and BSS enablement. With its strong overall performance, Red Hat earns the 2020 Frost & Sullivan Global Customer Value Leadership Award.

What You Need to Know about the Customer Value Leadership Recognition

Frost & Sullivan's Customer Value Leadership Award recognizes the company that offers products or services customers find superior for the overall price, performance, and quality.

Best Practices Award Analysis

For the Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at http://www.frost.com.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™. Learn more.

Key Impacts:

- **Growth Pipeline:** *Continuous flow of Growth opportunities*
- **Growth Strategies:** *Proven Best Practices*
- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- Mega Trend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)