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Cloud-Native Marketplace for Telcos

Key Recommendations to Ace Implementation

A joint whitepaper by STL & Robin.io

Introduction

In the first part of this whitepaper series, we discussed how an enterprise marketplace could prove to be a panacea for telcos' digital transformation woes. We also discussed, at length, numerous use cases that can be explored using the enterprise marketplace, such as IoT-as-a-Service, SD-WAN-as-a-Service and virtualized RAN-as-a-Service.

Going beyond offering basic connectivity, the cloud-native marketplace equips telcos to become digital platform players who can partner with multiple solution providers from various industry verticals to provide a combined value to the enterprise customers. The enterprise segment will open a world of new opportunities for the telcos and promises to create a much larger impact on the way partners and customers interact in the ecosystem.

Here, in the second part of the series, STL, along with Robin.io, will analyse and help you understand the best practices for a successful marketplace implementation. Three key learnings from this whitepaper are:

- How to build a marketplace that can help telcos to address three focus areas: Speed, Scale and TCO reduction
- How cloud-native infrastructure can span from IT to the infrastructure layer making your infrastructure as agile as your IT layer
- How to transform your platform and digitize various processes to support XaaS offerings

We will ask you various questions to help you evaluate your platform's readiness, scale and maturity and recommend best practices for a successful marketplace implementation. We would also take the vRAN-as-a-Service use case and demonstrate how a platform approach can make a big difference to telco's current way of working. While more and more marketplaces are coming up (be it enterprise marketplace, IoT marketplace or API marketplace), we will witness massive data center and infrastructure creation in the coming years. With growing complexities, only if you focus on all 3Ps - people, process and platform aspects, can you build the platform for XaaS offerings in a multi-partner ecosystem.

The key challenges in the adoption of enterprise marketplace

While an enterprise marketplace accelerates digital transformation, it's not an easy journey. Hence, before undertaking this transformation, it is crucial that telcos be mindful of these challenges and resolve them way ahead of time. As with any technology transformation minor issues can lead to considerable risks in the long run, if not careful.

Complexities of Enterprise Segment limits the pace of digitization

Different enterprise segments have different needs, so choose your segment wisely. The ability to offer Everything-as-a-Service requires a high level of adaptability to different use cases. For example, enabling enterprise Software-as-a-Service is much easier compared to enabling Network-as-a-Service, which requires complex integration with partners such as hardware providers, software providers and network applications providers, transport connectivity might be provided by one service provider, while 5G vRAN connectivity would be provided by another provider. Such complex bundled offerings require digitization of all business processes.

Many telcos end up focusing ONLY on lead generation from the marketplace / enterprise portals because of this reason. Hence, it is imperative that you define the target customer segment wisely and, most importantly, understand customer expectations with respect to what would make their life simple - be it purchase or self-care journeys, be it upgrades or payments, you need to go beyond lead generation. Marketplaces where enterprise customer digital journeys end at lead generation, are just marketing gimmicks and nothing more.

Partner experience is largely compromised without a self-care portal

Whether it is partner self-onboarding or partner product creation and bundling, or partner settlement, content management or account management, if your partners cannot do these activities independently and need to depend on offline methods, you cannot scale quickly.

Not being able to build more partnerships means not creating new offerings and not being able to capture the new market segments for various vertices. So, the entire purpose of the platform is diluted. Tweaking your legacy systems and converting them to a platform is going to fail. With this, you will not be able to build new revenue streams. This will retract your growth for the enterprise segment to single digits. You will be compared with the new players entering the market if you cannot meet the expectations of providing a similar or better partner experience. Though you may have an edge for connectivity services, you will not be able to make an impact.

Lack of pricing innovations and using the same old monetization levers makes it a recipe for failure

Telcos have made a significant investment in network infrastructure modernization and now this is the time for them to monetize those investments. Be it an enterprise portal or marketplace platform, if your revenue generation capabilities are limited and targeting ONLY towards end customers, it's unlikely to help you. Using the traditional monetization levers where you charge a recurring fee from partners for using your platform will not help you create new revenue streams.

Today customers expect flexible pricing options, demand to try offerings for free, and compare the pricing on other platforms and only if they find it lucrative will they go ahead. Partners expect loyalty programs and rewards and they too expect to get differentiated treatment when they remain loyal and commit to long-term partnerships with the platform providers. Many platform providers and hyperscalers have started partnership programs with Gold, Silver etc., partnerships for the same reason. Lack of platform maturity to provide such an experience will lead to customer and partner churn.

Dependencies on manual activities limit the agility required for success

Telcos provide various services to a wide range of consumers by harnessing the cutting-edge 5G network innovations. With everything available as a service, enterprises have more options to deploy their complex workloads - on Far Edge to centralized or Near Edge, on private clouds to public or hybrid clouds.

At this scale of deployments, be it workload deployment or network slice creation - it needs to happen in real-time, and to support this, you need to have the required agility in your platform - from IT to infrastructure layer. In the absence of such platform capabilities, operations and support will get more complex with the increasing number of subscribers and the new solutions on offer. Without a focus on a disciplined approach to automation, your challenges are going to increase multifold.

Operational cost for maintaining and running proprietary hardware solutions is remarkably high and it will continue increasing with growing complexity in workloads if you have not introduced automation from IT to infrastructure - at every layer. Hence Communications Service Providers (CSPs) need a solution that can minimize the cost and also adopt new technologies. The introduction of a 5G network in a cost-effective manner is another challenge in front of them.

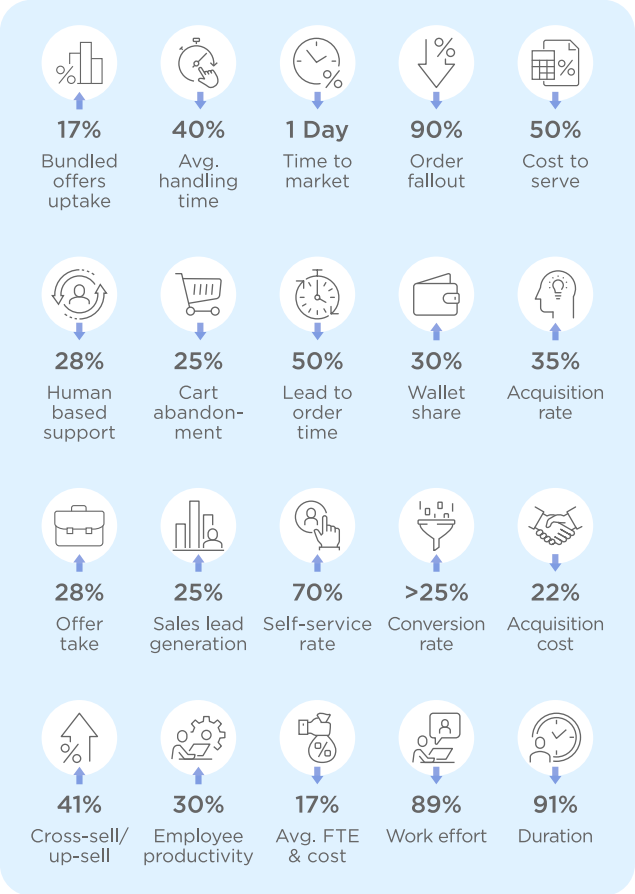
In a nutshell, achieving operational excellence within this complex ecosystem is a big challenge facing them. Failure to do so and continuing the dependency on manual activities for various processes, orchestrations, and platform management will not enable them to stay relevant in this new environment.

10 factors to derive the right solution construct: You cannot get that wrong

We recommend the 3P framework to help telcos digitally transform themselves and become platform providers.

1) Platform part focuses on building the right platform that can help you introduce technical and business agility to scale your business.

2) Process part focuses on ensuring that we are building the journeys to have the right outcomes. Processes need to be regularly measured through well-defined Key Performance Indicators (KPIs) and outcomes to ensure that the digital transformation initiative moves on the right track.



3) And the People part focuses on ensuring we introduce well-thought-out innovation, culture and skill changes for making people own and accountable for their success, be it building the right skills for running digital platforms or learning tools, technologies and processes.

You may build the right platform, focus on process automation, but if the people part is not addressed, you cannot achieve the business agility, so all three need to be addressed for this platform transformation. The 10 recommendations listed ahead are a combination of all the above three areas - Platform, People and Processes.

Building Cloud-Native Platform: Readiness Scale for Platformization

1. Build Identity based Secure Digital Journeys

a. Are your Customers, Partners and Telco journeys built on digital identity-based personas? Today users are no longer humans but machines and IoT devices, eSIM enabled sensors that are modernizing our lifestyles and experience of our day-to-day lives. Today, customers have multiple identities - be it social identities where they have followers who are largely influenced by their actions. Are your journeys built for different personas and identities?

b. Do your systems support flexible access management processes so that seamless ownership transfer /delegation of the responsibilities, personalization and security aspects are taken care of for every identity? While enormous opportunities arise with an increasing number of identities, so many players in the system can exploit your data if not appropriately secured. Hence, do your systems support “Security by Design” and “Privacy by Design” as the basic principles of the underlying architecture?

2. Simplify the Complexity of Enterprise Segment

a. Have you defined the enterprise customer experience strategy that can help you deliver business results? You may need to invest in building a customer-centric culture across multiple roles - from the support team that provides customer support to the strategy and executive team that will invest money and people to drive business results with improved customer experience. Typically, enterprise customers are deprived of digitization and the latest innovations and they deal with the experience that's a few years behind today’s innovations, so without focusing on all these aspects and building a focused strategy, you will not be able to improve the enterprise customer experience. Telcos need to define and focus on clear business objectives for enterprise customer journeys.

b. Does your platform abstract the complexity of compute-intensive, memory-intensive and data storage-intensive workloads? It should not only simplify just the order capture but also the service orchestration and fulfilment and do it in a more intelligent and automated way. Be it workflow approvals or complex enterprise billing, business hierarchy management or software and infrastructure lifecycle management, you need to introduce simplicity in managing it all.

3. Build More and More Partnerships and Leave no Stone Unturned to Make Your Partner Strategy Successful

a. How quickly can you onboard new partners? How fast can partners define new products and bring them to the market? How quickly do your partners get the revenue share? Can your partners manage all their needs on the self-care portal? Partners enjoy benefits if you empower them to do all these activities themselves, though some of these activities might be subjected to offline approvals by the platform provider. The only way to scale and bring more offerings to the market is by building more partnerships and expanding your partner ecosystem.

b. How privileged do your partners feel? What's the brand value of your partner programs, if you run any? Is your loyalty and retention program lucrative enough so that partners stay with you for a longer time and continue introducing more of their solutions on your platform? Only a strong partner strategy can help you build and expand the partnership with innovative players.

4. Design your Catalog for XaaS and New Business Models

a. Does your catalog support vertical-specific templates so that product creation for any XaaS offering is simplified and supports the 'Infinite product concept'?

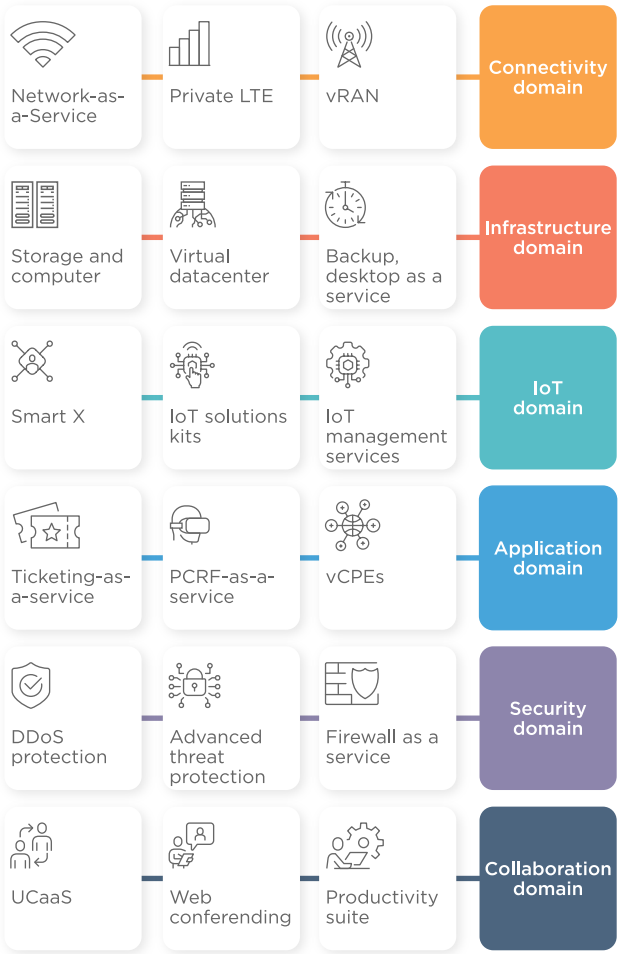
b. Is your product catalog centralized so that it can support catalog-driven orchestration?

c. Does your catalog support multiple pricing, discounting, tiering and subscription-based models for XaaS products? Does your catalog give the flexibility to define pricing based on customer attributes and support the contextual pricing? Does it provide "free trial" based options to rapidly engage new customers? Profitability and flexibility to define the appropriate pricing model is what will keep your partners engaged with you, so the right licensing and flexible pricing policies will keep them satisfied.

d. How easy is it for partner product managers to define and deploy products in real-time? All partners look to have a faster time to market for all their products, so if you help them with this, they are more likely to stick with your platform. Also, how easy is it for them to bundle their offerings with other partners' offerings? Customers love to quickly purchase bundled product offerings, especially when they provide both value and lucrative benefits. So, partner product managers must be flexible to create new bundles with different offerings and benefits.

At the same time, it's important to note that designing ONLY a catalog for XaaS and new business models will not help you. Your entire ecosystem, be it frontend marketplace or backend billing, all the components need to be enhanced to support the new business models.

Multi-domain XaaS based use cases



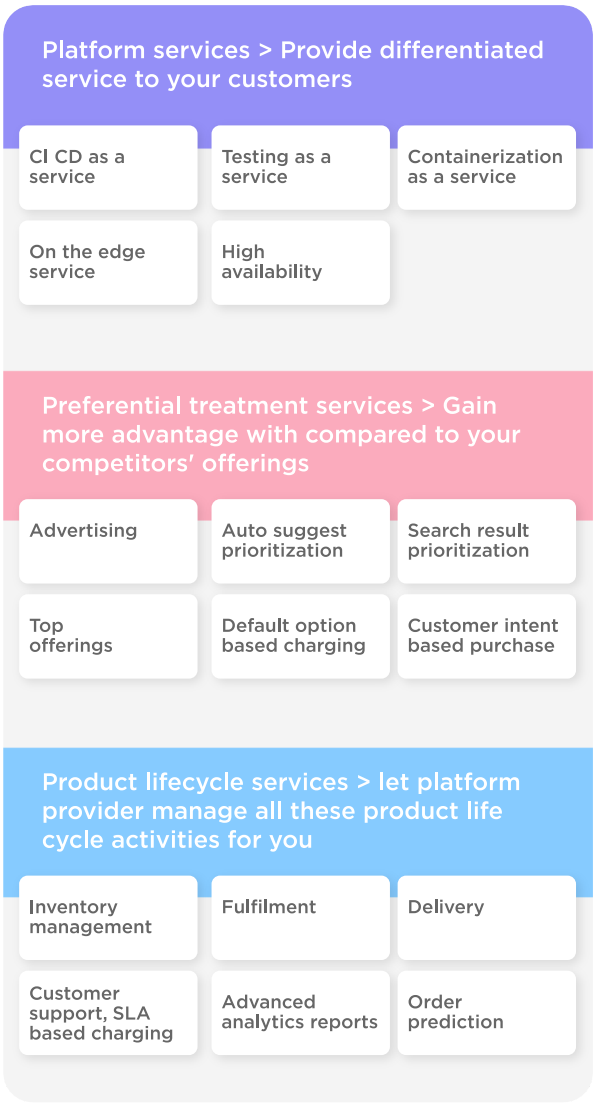
5. Introduce New Value-Based Monetization levers

a. Does your platform support different revenue models? From rigid pricing models, you need to move to flexible pricing models.

b. Does your platform help you simplify contract negotiations and partner settlements? Be it enterprise billing or partner billing and settlement, a more transparent and real-time view will help your partners to leverage the platform benefits in a true sense compared to today's tedious and time-consuming processes.

c. Does your platform help you generate monetization opportunities for different services that you provide to your partners? For instance, Platform Services, Product Lifecycle services, Preferential Treatment Services as highlighted in the figure below.

Creating new revenue streams



6. Build Standardized, API-based Products That Enable Ease of Integration

a. Is your portfolio standardized? Does it support standards such as 3GPP, TM Forum, GDPR and PCI, among others? Standardized portfolios help you simplify integration with external systems of different vendors, especially where the Tier1 telcos want to go ahead with the best-of-the-breed approach or are not ready to change their legacy systems.

b. Does your architecture support pluggable modules? The telcos that do not want to replace the entire ecosystem and would like to introduce only needed capabilities to complete the vision can benefit from pluggable modules.

c. Does your platform support event-driven architecture and helps both sync and async communications to support various needs of complex use cases?

d. Does your provisioning and fulfilment systems have the flexibility to integrate with the partner ecosystem? For complex enterprise offers, fulfilment might need to be done in multiple partner ecosystems, along with the telco ecosystem.

e. Does your platform provide you with the flexibility to monetize APIs? Rightly-built architecture with an "API first approach" helps you create an API marketplace where there will be an API-mesh of thousands of APIs and interaction/usage of those APIs will be streamlined in a special manner. Both introduction and consumption of APIs become easy in such an ecosystem.

7. Build Purely Cloud-Native Platform For All Your IT and Infrastructure Needs

a. Are your IT and Infrastructure - both the layers pure cloud-native? If they are, ensuring high availability, auto heal, auto scale, zero downtime, one-touch deployment becomes easy. Only cloud-native platforms can support massive and complex implementations with extreme agility while keeping TCO the lowest.

b. How flexible is your deployment model? If your platform and solution approach is helping you to move to Canary deployment, you can reduce the rigidity that has been associated with traditional deployment models. Also, flexibility to do A/B testing for selected customer segments and rolling out updates to larger segments after carefully evaluating the results will take you closer to success.

c. Does your DevSecOps only focus on the application layer or covers all the layers till the database layer? Do your security scans cover only your proprietary libraries or also third-party libraries? These are the points that will help you address flexibility not just to deploy but also to revert installed software as and when needed.

d. Does your platform have inbuilt resiliency? The Chaos monkey kind of solution ensures your system is built "failure proof." System itself would continue introducing failures and keep it fully functional in all scenarios.

e. Do you have independent, lightweight and stateless micro services to support each function? When your architecture is built to support separate build, separate code coverage and analysis, separate database schemes for every micro service and rightly built intercommunication between micro service, doing phase-wise transformation for one function at a time is not difficult. This will take you to the eventual path of success, though the intermediate stage may look like a hybrid model of containers with a group of functions (fast monoliths) and very carefully built micro services that represent unique functions of the system.

f. Does your platform support CNCF best practices? The Cloud-native foundation has already laid a blueprint for success. How aligned is your platform with these best practices will define your success.

g. How well are you using the benefits of the open-source ecosystem? Are you innovating and taking it to the next level? For instance, there are many benefits of Kubernetes but it's stake less, so can you add statefulness to manage workloads that need you to maintain state.

h. Is your platform infra agnostic? Ability to deploy the platform on any infra, starting from COTS hardware to proprietary hardware of different vendors, run it on any cloud – be it telco cloud or hybrid cloud, Far Edge or Near Edge infrastructure, will make you flexible to support different solution needs of your partners and also support high performance, low-latency use cases that are emerging with technological advancements.

i. Does your platform provide cross-cloud compatibility? For example, if you have deployed your software on Azure and there is an outage, can you deploy it to GCP or AWS (or vice versa) within an hour?

j. Does your platform provide app-aware storage capabilities? In complex ecosystems, it is extremely critical that the platform understands the need of different types of workloads and addresses the storage needs of the same in a unique way.

k. Can your platform do Multi Data Center Automation? With more and more players bringing innovative solutions, telcos now have the flexibility to run their private data centers more efficiently. At the same time, they can take advantage of public cloud deployments as well. With such a complex ecosystem, does your cloud-native platform provide a basic ability to do Multi Data Center Automation to telcos? If yes, that simplifies automated infrastructure management across all data centers and managing it becomes easier.

8. Use Data to Drive Success - Be It Customer/Partner Experience Analytics or AIOps

a. Does your system make the right use of data to improve enterprise customer experience and partner experience? The ability to do enterprise customer journey analytics and partner journey analytics would help you understand your customers' and partners' behaviour. Based on these analytics reports, personalization strategies for both enterprise customers and partners can be evaluated and improved.

b. Does your system make the right use of data to introduce operation efficiency and effectiveness? Automated decisions based on the right triggers can help you avoid outages. AIOps is, in fact, becoming the most invested and most POCed area for technology companies. Right data use will enable you to do a timely health check of the network elements and allow you to do better capacity management.

c. Are you able to differentiate between data that can help you make an intelligent decision, data that can help you with audits and data that can be used for charging? This identification can help you use the available data for the right purpose. Once you can differentiate between different data processing needs, it also becomes easy to identify which application needs to run on the Near Edge and which on the Far Edge. Though Edge deployments help you reduce significant traffic, benefits need to be clearly defined to give it higher weightage over cost implications.

9. Build Once, Deploy and Configure Multiple Times

a. How well do your platform and system provide flexibility to do configurations that drive the system behaviour? Flexible journey modeler, user-friendly System Integrator, Advanced helm chart support simplifies the system administrator's job to a large extent for managing such a complex system.

b. How easy is it for your platform to support a hybrid cloud deployment approach? Does it support centralized platform services? For example, how are you doing centralized cache management? How is your microservices, deployed across different clouds, using a centralized logging and monitoring framework so that you can maintain the state across multiple clouds? Does your platform support centralized observability? In the complex deployment models, you will have a few workloads deployed on public clouds and a few on private data centers, so central deep observability is crucial.

c. Does your multi-tenancy approach provide enough flexibility to introduce localization for respective geography and alignment to local laws? You need to build a platform for flexible operations.

10. Introduce Automation at Every Level to Drive TCO Reduction

a. Does your platform automates software application lifecycle management, network function lifecycle management - be it VNF or CNF? The industry is moving towards CNF driven architecture, but both VNF and CNF will coexist (mostly as containerized VNFs) before all VNFs are transitioned into CNF. Your platform's ability to support automated lifecycle management for complex workloads will help in enabling such complex transitions.

b. Does your platform do automated orchestration for different types of workloads - from multi-vendor bundled offers to multi-cloud deployment models across multiple data centers?

c. Does your platform guarantee optimal use of resources? Does it provide you with a single pane of view across multiple deployments? How do you manage both the day 0 operations (which involves allocating resources, finding the right hardware and deploying it on the right infrastructure) and day 2 operations (ensuring automated scaling, auto-healing or redeploying, taking care of lifecycle management, upgrading software applications)?

d. Does your platform help you with infrastructure upgrades? For example, if you want to upgrade your switches, routers etc. does it allow you to do automated infrastructure management? As complexity grows with 5G, you will have millions of network elements to manage and robust infrastructure will help you easily manage such large, complex and heterogeneous networks. Manual management of the network is not possible, as was possible with previous technologies.

e. Does your platform introduce automation in all processes - be it doing regression testing for newly introduced functionality or rule-based approvals for workflow management?

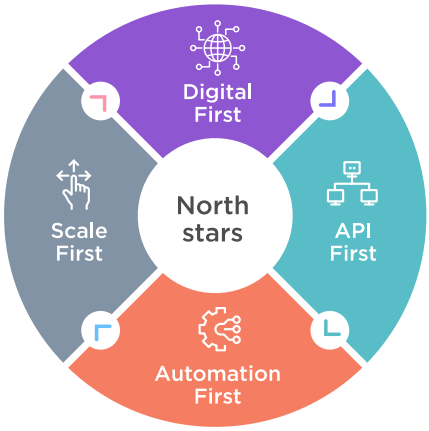
f. Do you need a large team of DevOps squad to manage the platform? With the right amount of automation, you will not need large teams of DevOps squad, at least to maintain software or platform needs. The platform will self-manage and run by itself.

Automation is the only viable way to manage the complexity of the infrastructure and software-defined solutions. It also reduces cost, time consumption and human error. Automation has a widespread impact in solving several challenges that we see in many industries and situations. While automation is always driven by technological progress, we need to go beyond the current possibilities to realize the full impact of automation.

In summary, these 10 approaches can be mapped to the following North Stars

9. Design your Catalog for XaaS and New Business Models
10. Build Once, Deploy and Configure Multiple Times

7. Build purely Cloud-Native Platform for all your IT and infrastructure needs
8. Introduce Automation at every level to drive TCO reduction



1. Build Identity based Secure Digital Journeys
2. Simplify the Complexity of Enterprise Segment
3. Build more and more Partnerships and Leave no Stone Unturned to Make Your Partner Strategy Successful

4. Build Standardized, API based products that enable Ease of Integration
5. Use Data to drive success
6. Introduce New Value-based Monetization levers

Digital First Approach

The outbreak of the COVID-19 pandemic last year has highlighted the importance of the digital-first approach and the need to ensure a best-in-class experience for both partners as well as the customers. From securely managing the users' multiple identities to addressing the different digitization levels of the enterprises to providing a self-care portal for the partners, the platform needs to adopt a digital-first approach to proactively address these needs.

API First Approach

The success of a platform provider depends on how easy it is to introduce and consume new APIs for different players who are using the Marketplace ecosystem. Easy introduction and consumption of APIs lead to quick and easy monetization of the Marketplace. Be it platform services, analytics services, flexible pricing options, standardized APIs play a vital role in extending your system's capability to integrate with a diverse range of solutions. And with this, you are able to scale and grow faster. The API-first approach works really well for the best of breed type of solutions, so you really do not need to do full transformation, rather introduce capabilities missing in your system.

Automation First Approach

With the growing complexity of multi-cloud/ edge environments, automation has emerged as the most effective way to manage software-defined solutions over the last few years. You need to go beyond the traditional use cases to explore new use cases to maximize the benefits of automation – be it operations management, network monitoring, infrastructure management or application lifecycle management, extreme automation can only help you become cost-effective, maintain full resiliency and scale faster.

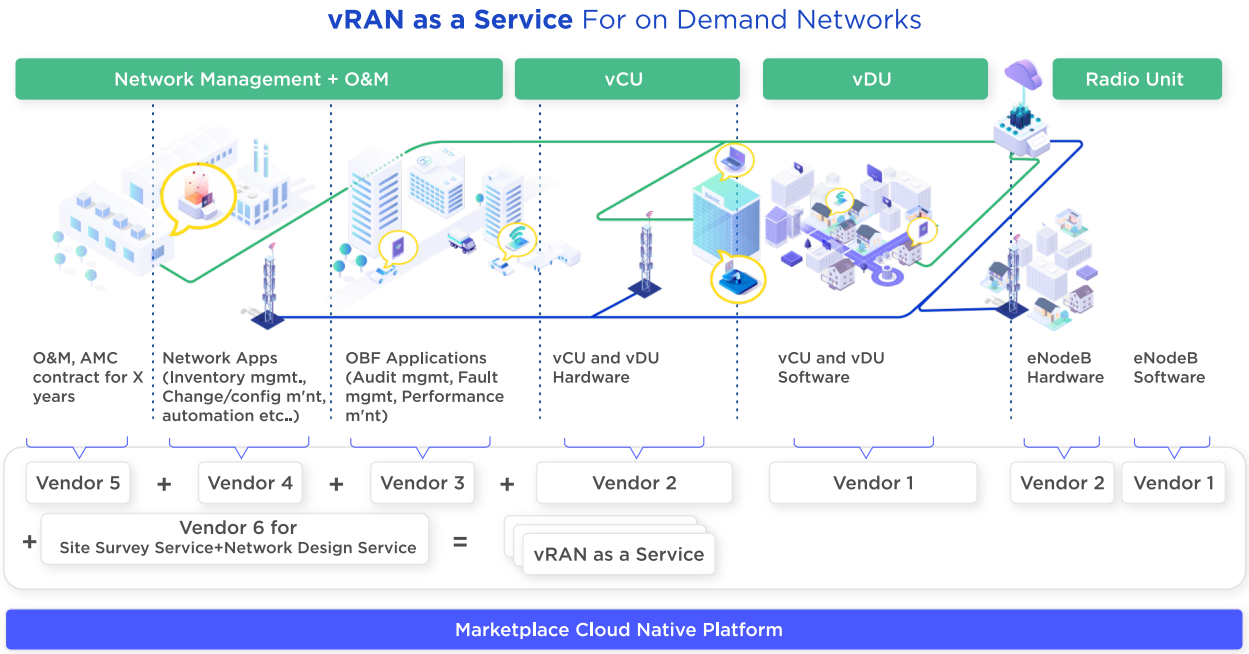
Scale First Approach

The telcos can leverage the vast potential of network slicing by moving to cloud-native platforms that can support the dynamics of 5G digital services. Create a platform that self manages itself so that you can focus on bringing new solutions faster to the market. If your platform understands application needs and upscales based on parameters you set, you do not need more people to manage complex infrastructure. Right platform architecture and components can help you scale fast by introducing new use cases or addressing new market segments.

vRAN-as-a-Service use case

5G is becoming the first generation of technology that empowers the enterprise segment more than the retail segment, where the network itself is capable of managing network performance down to the application level using network slicing. However, for telcos to successfully monetize the vast potential of network slicing, they need to move to true cloud-native platforms that support the dynamics of 5G digital services.

5G network is evolving continuously and virtual RAN is an outcome of this continuous evolution. vRAN brings numerous benefits in terms of efficiency and cost-effectiveness. Now the CSPs can onboard a single uniform hardware platform across the core network, RAN and Edge. This simplifies the hardware management of the complete network. Not only this, true hardware and software disaggregation has provided service providers with the never-before flexibility to opt for the vendor of their choice for each component and here we explain how Marketplace and platform simplify the same.



How Marketplace and its Cloud-native Platform addresses the true four north stars for the above use case

Digital First Approach

Marketplace simplifies the purchase experience for network architects of greenfield providers, who as enterprise customers, would like to purchase on-demand connectivity for their end customers. They get the flexibility to choose separate vendors for hardware and software. Not just that, telcos can bundle hardware and software with multiple network providers' solutions, like Deep Observability coming from completely different vendors, AMC provided by another vendor, site survey provided by a different vendor, and on top, network design is done by a completely different vendor. While some elements of these selections can be automated, the idea is to provide a flexible and simplified purchase journey for on-demand connectivity.

API First Approach

From partner self-on boarding to partner product creation, partner bundling to service orchestration, supporting network slice-based charging and enterprise billing, Marketplace, along with these BSS components, helps simplify not just the purchase journey but all customer lifecycle journeys for this use case. Most importantly, it generates various monetization opportunities – a bundle can have a different price, every network slice can have a separate charge for creation, activation and termination. It can have usage-based charges as well.

While dynamic auto-scaling is done and a new slice is created automatically based on the user needs, it can be charged at a higher rate for the premium segment. Partners too have different options to purchase a variety of services from the Marketplace – be it integrating their solution with other vendors' solutions or using Marketplace platform services to run their workloads. It can also be to get advanced analytics reports like predicting next month's orders. If telcos build network-in-a-box solutions to provide connectivity to a very restricted area, not more than one or two Radio Units need to be installed, so bundled options, when made available to users, help them make a quick selection to address their needs.

Automation First Approach

Be it vRAN or Open RAN, these use cases have several complexities in orchestration and infrastructure management. Once purchased, Marketplace and its cloud-native platform ensure seamless orchestration of the complex infrastructure required to set up real-time connectivity.

The platform ensures there is reliability for maintaining maximum uptime for vRAN. It detects failures of VNFs and orchestrates the automatic deployment of the failed VNF to a working node. The high availability of vRAN is assured by continuous network monitoring and automatic healing provided by the platform.

VRAN provides greater flexibility due to the decoupling of hardware and software. Unlike Distributed RAN, in the case of vRAN, the BBUs are virtualized and can be moved away from the base station to a data center and can be implemented with VMs or containerized in a centralized data center. There are Far Edge, Edge and core data centers running different workloads, the platform should have the agility for running all these contrasting workloads at ease. Such a high level of complexity is easy to manage, thanks to the extreme automation supported by the platform.

Scale First Approach

To provide 5G coverage, telcos need to set up thousands of sites depending on the type of deployment model they select. As they look forward to enhancing performance and cater various IoT services to meet the end-user demand, vRAN needs to scale up to meet the increasing demand of bandwidth-intensive applications in 5G. The underlying platform is able to sustain vRAN to achieve the desired performance and scalability. In addition, the NUMA aware platform has the huge page support to induce vRAN to obtain the efficiency to meet 5G bandwidth requirements.

Preparing and maintaining the hardware for not just day-1 operations but day-2 operations as well for such a large scale is another challenge that the orchestration platform addresses. Once the platform is ready for vRAN deployment, it unfolds several vDUs and vCUs across Far Edge and Edge locations. Core application gets deployed in Core Data Center (CDC). The life cycle management of all the components running in Far Edge, Edge and CDC are managed in closed-loop automation with the help of defined policies. Automation and scale go hand in hand to support such large scale deployments.

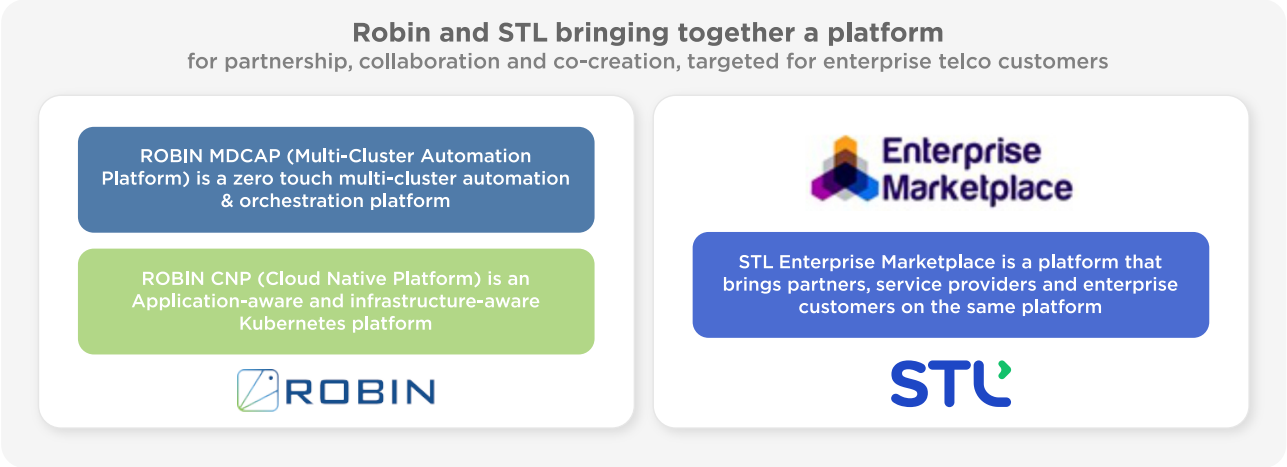
Key takeaways on what helps the platform in simplifying the complexity to address scale

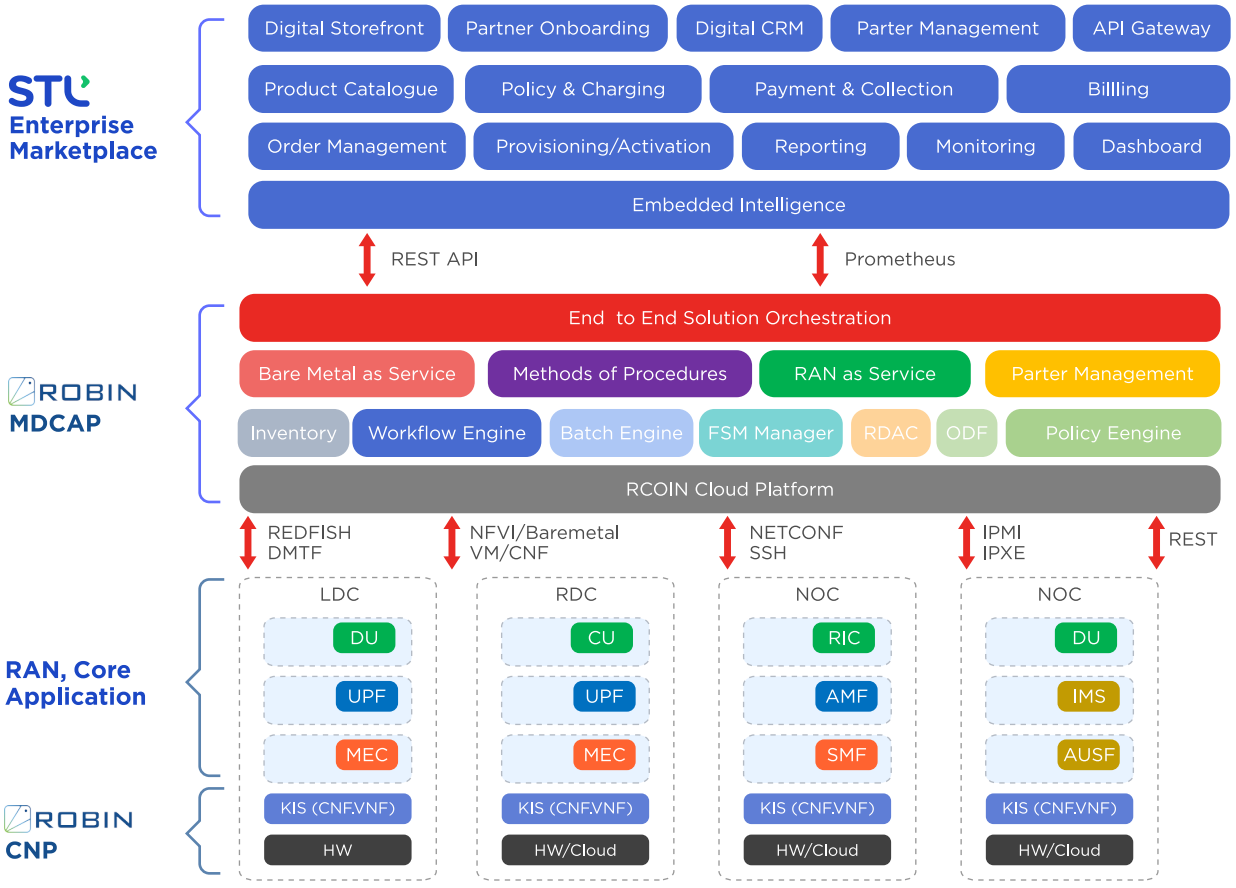
- Redundancy and resiliency for maximum uptime of vRAN
- Agility for deployment at scale across Far Edge, Edge and CDC
- Capabilities to run performance-intensive applications.
- Auto-healing of vBBU (vCU and vDU) for maximum uptime of vRAN service.
- Lifecycle management of running vDU and vCU, along with the Core Applications.

STL and Robin Joint Platform Solution

STL and Robin joined hands to build a global strategic partnership, combining STL's industry-leading Enterprise Marketplace solution with Robin's world-class Cloud-Native Platform on the enterprise side. STL Enterprise Marketplace brings together the service providers, partners and enterprise customers from different verticals on the same platform. On the other hand, Robin's cloud-native platform provides storage, network management, scheduling to run complex workloads that come from the application vendors and partners across various spectrum of use cases.

The synergy provides a complete platform for partnership, collaboration and co-creation, targeted at enterprise telco customers. Whether it is Infrastructure-as-a-Service / Platform-as-a-Service or any XaaS use cases, right from purchase to self-care journeys are made available to the enterprise users. This includes not just the business needs but management of the platform and infrastructure needs. It's incredible to see how you can achieve speed, scale and TCO reduction at the same time if you focus on building the right platform that makes your infrastructure as agile as the IT layer. This not only makes your portfolio XaaS ready but also enables you to undertake complex enterprise transformations.

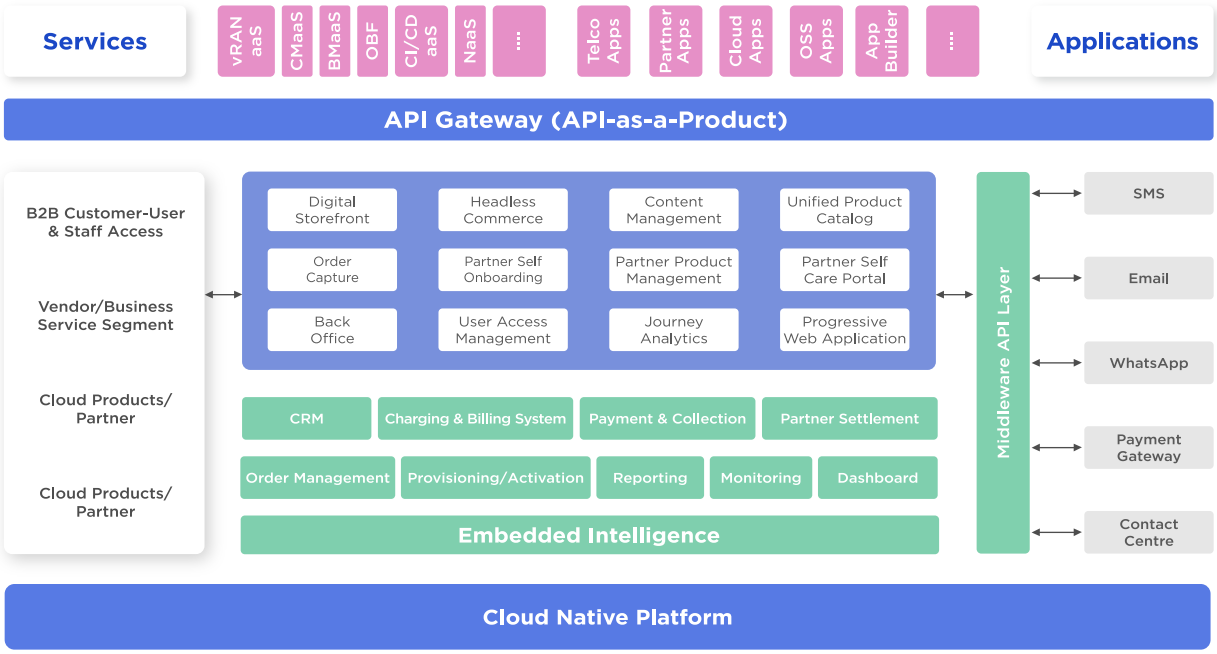




STL Enterprise Marketplace is a telco-native digital platform

- That brings the pent-up demand from the enterprise segment to the service providers
- And helps them capitalize on the vast market opportunity in near real-time
- By leveraging the cross telco-vendor partnerships capabilities

STL Marketplace synergizes the strength of multiple vendors, partners, and customers from different verticals and brings them together on a common platform, thus forming a robust foundation for a digital marketplace. Marketplace makes this possible by providing the common language, shared tools and assets, and open exchange of value amongst the players for transforming the gameplay. Despite all the underlying complexity of managing networks, product offerings and complex billing and settlement systems, STL Marketplace ensures business velocity by automating business processes, adopting powerful tools and opening up building blocks. Amplified by the network effects and accurate customer insights, STL Marketplace provides the essential leverage for CSPs to exploit business “unusual” models to cater to the range of complicated and complex use cases of enterprise customers.

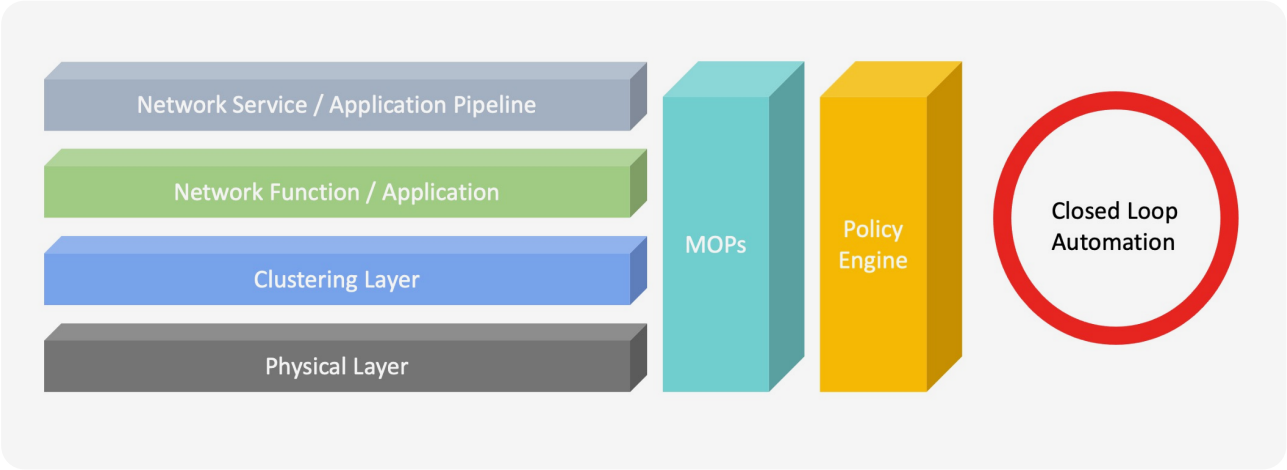


Robin MDCAP and CNP Platform

We wrote earlier about the expectation and key points on how an ideal platform should be and how Robin Cloud Native platform (CNP) meets the criteria and standards that telecom service providers demand. Robin CNP completely takes care of the redundancy and resiliency of the vRAN and core applications running. With growing numbers of Far-edge, Edge locations and data centers, it is very challenging to have a uniform platform capable of seamless handling of vRAN and core applications. Apart from that, Communication Service Providers are open to onboard any vRAN / O-RAN services and with the bifurcation of vBBU to vCU and vCU, the expectation from the underlying platform is enormous. The platform has to be ready with capabilities like Single Root I/O virtualisation (SR-IOV) for network-intensive workloads, NUMA awareness, CPU pinning, affinity and anti-affinity policies, along with huge pages support.

Robin CNP efficiently covers all the aspects that a vRAN / O-RAN or a 5G core application demands today. The Cloud Native Platform maintains the simplicity in managing the complex ecosystem through Robin dashboard, monitoring through inbuilt Prometheus and Grafana dashboards. Robin CNP also exports endpoints for integration with any Observability Framework that the CSPs prefer.

Robin Multi-Data Centre Automation Platform (MDCAP) takes charge of setting up the Far-Edge and Edge clusters starting from OS install followed by Robin CNP install and getting it ready for vRAN deployment, which is again one of the key requirements. Secondly, the job is not done with just Day-1 activity; there are Day-2 tasks to monitor the application and set a policy engine where CSPs can define the thresholds and necessary steps required for complete end-to-end life cycle management. We have Far Edge, Edge and CDC running applications with individual distinctiveness on Commercial-Off-The-Shelf (COTS) hardware, hence complexity is more. But MDCAP, irrespective of the hardware platform is capable of automating the life cycle management and with the help of a policy engine, the management becomes completely automated.



For example, say there is a node failure at a Far Edge cluster running DU, MDCAP is configured to run automated MOPS to run health checks for the site. With OSS integration in place, continuous health checks are triggered to monitor the site, on observation of the failure, another MOP will be activated from OSS using MDCAP to send SMS to users that the site is down and another MOPS for letting the support team know about the failure. Finally, Robin CNP will automatically restart the failed pods to a working node in the cluster.

Based on defined policies, MDCAP can trigger redeployment of the DU app in the same cluster and at the same time, it can remove the failed node from the cluster and add another node to the cluster, if available as spare. The cluster will be back in full strength, and OSS can trigger MOPS using MDCAP to notify users as service is back up.

Authors

Mayur Madhawani

Product Manager, STL

Mayur Madhawani is a passionate learner and an innovator with over 15 years of experience in the telecommunications industry. As a Product Manager at STL, Mayur oversees STL's digital engagement platform, Unified Product Catalog and Enterprise solutions. Researching use cases enabled by the latest technology enhancements in domains like 5G, Cloud Management, Enterprise Solutions and XaaS remains his interest areas. In addition, he is closely working with different customers to help them enable new revenue streams with these technology enhancements.

Priyanko Paul

Senior Solutions Architect, Robin

Priyanko Paul is passionate about technologies and a motivated learner with over 16 years of experience in the IT industry. As a Senior Solutions Architect in Robin.io, Priyanko is engaged in providing solutions to customer problems related to the challenges they face in MDCAP and Cloud platform. His key interest areas are automation in the telecom industry, along with enterprise solutions.

About STL - Sterlite Technologies Ltd

STL is an industry-leading integrator of digital networks.

Our fully 5G ready digital network solutions help telcos, cloud companies, citizen networks, and large enterprises deliver enhanced experiences to their customers. STL provides integrated 5G ready end-to-end solutions ranging from wired to wireless, design to deployment, and connectivity to compute. Our core capabilities lie in Optical Interconnect, Virtualised Access Solutions, Network Software, and System Integration.

We believe in harnessing technology to create a world with next generation connected experiences that transform everyday living. With a global patent portfolio of 582 to our credit, we conduct fundamental research in next-generation network applications at our Centre of Excellence. STL has a strong global presence with next-gen optical preform, fibre, cable, and interconnect subsystem manufacturing facilities in India, Italy, China, and Brazil, along with two software-development centers across India and a data centre design facility in the UK.

About Robin.io

Robin.io provides cloud-native capabilities that help with automating deployment, scaling and lifecycle management of enterprise and 5G applications on Kubernetes. We accomplish this through application bundles and application pipelines, which are automated through patented infrastructure and application-topology awareness technology that powers the Robin Cloud Native Platform.