Robin.io Multi Data Center Automation Platform (MDCAP)

Bare metal-to-service orchestration with massive scale using, closed-loop automation - day 0/1/2 life-cycle management

MDCAP's hyper-automation orchestrates and manages the life-cycles for your bare-metal infra, 3rd party appliances, Virtual Network Functions (NVFs), Cloud-native Network Functions (CNFs) and service chains, with built-in logging, monitoring and policy engine, for closed loop automation that is managed through a single pane of glass. All of this is driven by an intuitive, context-aware and easy to use work-flow manager.

MDCAP provides 1-click application & Network Function (NF) on boarding, pulled from a large, pre-integrated, vendor ecosystem encompassing telco, cloud and enterprise applications. Ingest any scripting, such as helm charts, to automate Methods Of Procedures (MOPs), orchestrating any network element, application or process.

Robin customers now do in minutes, what took days and weeks in the past, by integrating multiple layers of orchestration and workflows, into a single platform – ideal for rapid scale out of 5G, Open RAN and Multi-access Edge Computing (MEC) applications, such as Content Delivery Network (CDN) streaming, Gaming and more...

KEY BENEFITS

♦ Accelerates infrastructure and service turn-up timeliness

♦ Eliminates integration touch-points and orchestration silos

♦ Improves performance and utilization of services

♦ Enables truly shared resource pools, with Containers and VMs deployable in the same cluster

♦ Small footprint and scales to over 1,000,000 nodes

CUSTOMER VALIDATED EFFICIENCIES

♦ First production containerized 5G stack with millions of subscribers – full stack deployment and in-service Open RAN

♦ 40% reduction in OpEx scalable orchestration and automation for RAN and Core

♦ 50% reduction in CapEx by enabling Open RAN and Core on commercial hardware

♦ Reduced in deployment times: from weeks to minutes

♦ When combined with Robin Cloud Native Platform (CNP) - 30% faster when running VNFs and 3x faster storage performance

SOLUTION HIGHLIGHTS

Full stack orchestration & lifecycle management - bare metal to service orchestration

Manages life-cycles and turn-up of your HW infrastructure, cloud platform, NFs, supporting applications and services, on one platform. This includes remote turn-up of completely bare servers

Orchestration simplification and agility

Remove orchestration and MOPs silos with a single, unified, engine for the entire stack, with access to all of the work-flows, packaged with an easy to use interface utilizing programmable, context-aware and reusable elements, simultaneously across the entire landscape. Combine multiple layers of orchestration and MOPs into single, 1-click, work-flows.

Harmonized container and virtual machine (VM) support

You are no longer tied to your vendor's containerization road-map, licensing or support contracts. Realize sharable resource pools today. Deploy CNFs and VNFs on the same or separate high-availability clusters, reusing and sharing resources.

Applicable to any network element or application

No vendor or technology lock-ins. Configuration and management support for not only compute/store/network infrastructure, but also proprietary 3rd party equipment including top of rack switches, 5G radio, security, content delivery appliances and other Physical Network Functions (PNFs).

New paradigm in monitoring that reduces outages

Go beyond simple lists, logs and utilization graphs. Robin clusters and the policies they enforce, are application aware, calculating placement based on detailed resource policy models with topology awareness, affinity/anti-affinity rules and service composition, to name just a few. MDCAP's multi-cluster, multi-data-center monitoring and policy engine drives workload scaling healing and migration anywhere in any cloud. It intuitively relates the dependencies and how they impact services. This enables the operator to better under the system as a whole and make more informed decisions, for example, service impacts due to the addition of new services, server migrations, OS upgrades, security patches etc., dramatically reducing service impacting events and human error.

Quickly combine any of these life-cycle management domains into a single, 1-click, operation

Advanced Inventory & Service Management

Robin inventory management goes beyond comprehensive dashboards for health/usage/alarms and focuses on dependencies. MDCAP's multi-cluster monitoring and closed-loop automated policy engine intuitively relates those layers of dependencies and how they impact services. Drill down into a flagged cluster, or hardware nodes and see the impacted services and exactly what elements have failed or degraded. Perform blast-radius analyses to model the impact of any device, node or process. This enables the operator to better under the system as a whole and make more informed decisions. For example, service impacts due to the addition of a new service type, a server migrations, an OS upgrade, a database rebuild, security patches etc. These capabilities help the operator plan quicker, easier and with better confidence, reducing service impacting events and human error.

- Action center: Visualize multi-data center, multi-cluster resource aware dependencies
- Fault domain detection and blast radius service impact mapping
- Data drilldown
- Service-mesh and resource visibility mesh

Bare Metal Life Cycle Management

Manage your HW hardware infrastructure with numerous, intent-driven and contextually aware checks that guide your exacting declarations. Transform a bare server, without configuration or an operating system, via a remote Baseband Management Controller (BMC) Ethernet or Serial connection.

- Verify, install, upgrade, patch and configure the OS
- Supports many Intel and AMD-based vendors and SKUs including HP, SuperMicro, Quanta Cloud Technologies (QCT), Dell and more
- Add and configure supporting drivers, services and software packages
- Upgrade and configure OS and BIOS settings
- Upgrade configure and patch different firmware components including NIC, SSD, FPGA, NVMe, RAID

Cloud Platform/Kubernetes Cluster Life Cycle Management

Zero-touch automation of Kubernetes cluster deployments across thousands of edge locations. Robin MDCAP + Robin CNP enables a huge feature boost. Robin CNP is based on open source K8s, with value added features including, resource modeling, advanced placement algorithms, providing NUMA-awareness, CPU Pinning, HugePages support, affinity/anti-affinity rules, multi-CRIs (Containers, VMs). Furthermore, CNP ships with built-in application aware enterprise-grade storage and numerous carrier-grade virtual networking options. See the Robin CNP data-sheet at robin.io for more details.

- Verify, install, upgrade, patch and configure K8s clusters
- Design clusters, configure roles based access via user: operation: element parameters, as well as per cluster, site and Kubernetes name-space
- Centralized policy and resource inventory management
- Supports numerous K8s distributions including Robin CNP on prem, CNP for AWS/GCP/Azure

Network Function Life Cycle Management

Manage both CNFs and VNFs, even on the same cluster, for high density, reusable, resource pooling. The NF life cycle manager works in concert with Robin CNP to take advantage of advanced workload placement, networking and application aware storage.

- Onboard, monitor, start, stop, add, delete, scale, heal and migrate with easy to config and intuitive rules engine
- Supports Robin Bundles, helm charts, operators, YAML, 3rd party scripts
- NFs can leverage Robin CNP's advanced compute, network and storage placement from directly helm charts, without writing a single line of code

Application Life Cycle Management

Application management focuses on software that is not considered to be an NF, but is still necessary as part of the overall solution such as: data bases, big data solutions, AI/ML, analytics stacks, load balancers, message queues, controllers etc. The application life cycle manager works in concert with Robin CNP to take advantage of advanced workload placement, networking and application aware storage.

- Onboard, monitor, start, stop, add, delete, scale, and heal with easy to con-fig and intuitive rules engine
- 1-click migration of the entire application to/from other clusters
- Data Management, including snapshot, clone, backup, restore, import, for entire applications not just storage volumes
- Supports Robin Bundles, helm charts, operators, YAML, 3rd party scripts

Network (NS) Service Life Cycle Management

Design and manage complete services chains comprised of VNFs, CNFs, PNFs and other application elements, mixing and matching, using programmable, contextual and state aware work-flows. Deploy one-by-one or in automated batches. The NS life-cycle manager works in concert with Robin CNP to take advantage of advanced placement, networking and application aware storage. Network services can be monitored using complete observability stacks that include, policy dependencies, resource metrics, event logs, alerts and statistical drill down.

- Create, monitor, start, stop, add, delete, heal, migrate and scale service chains
- Design NSs distributed in different clusters contextual, readiness aware, serial and parallel NS turn-up
- Supports: Robin Bundles, helm charts, operators, YAML, custom NS policy pinning

Methods of Procedures Management (MOPs) And 3rd Party Appliances Lifecycle Management

Robin inventory management goes beyond comprehensive dashboards for health/usage/alarms and focuses on dependencies. Robin clusters, and the policies they enforce, are application aware, calculating placement based on detailed resource requirements, topology awareness, overlay/underlay networking, Affinity/Anti-Affinity and resource composition to name just a few.   MDCAP's multi-cluster monitoring intuitively relates those layers of dependencies and how they impact services. This enables the operator to better under the system as a whole and make more informed decisions, for example service impacts due to the addition of new service types, server migrations, OS upgrades, security patches and etc.   These capabilities helps the operator plan, quicker, easier and with better confidence, reducing service impacting events and human error.

- Configure and create custom processes for 3rd party appliances, supporting applications such as load balancers, databases and analytics stacks
- Create work-flows that extend beyond that of typical infrastructures, platforms and services
- For example, raising alarms, sending texts or amending logs when a 5G radio or MEC application initializes, fails or reaches a user defined threshold

Intuitive & Declarative Day 0/1/2 Lifecycle Management

ROBIN