FocusonContainers.com

Vendor Briefing

Robin Systems

Company	Robin Systems
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Title	CMO
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Interviewers	Larry Gordon and John Katsaros

FocusonContainers.com: Hello Sushil. Thank you for taking the time to talk with us. Can we start with a little background on Robin Systems?

Sushil: We are three years old. We came out of stealth mode in March this year. We've got about 50 employees. We have paying customers and this is the first year that we are selling the product. So, among our customers we count the large enterprises as our targets. With that let me just dive into what Robin system does. At a high level our tag line is *application-defined data center*. And what that signifies is that Robin is trying to create the next evolution of the software-defined infrastructure by integrating application intelligence into the infrastructure. The application-aware software-defined infrastructure.

Now why is that a big deal? In a traditional data center, the worlds of infrastructure and application have been very separate. Infrastructure is all about how to just minimize the cost and maximize efficiencies, and the whole notion of what an application is made of and how well it runs essentially has been the job of people who own applications, developers, DBAS, application admins and the like.

Now, as long as applications were simpler, monolithic, a machine could act as a proxy for applications. But we are moving to an era where we are dealing with *distributed applications*, that are significantly more complex, comprised of processes running across multiple machines, and where the quality of service really matters. Before coming to Robin, I was at Oracle and earlier in my career I was a DBA also. I remember those days where quality of service was delivered on a best-effort basis versus the modern customer-facing web or mobile applications where the quality of service is mission critical. And clearly, we're dealing with a lot more data than we ever have.

Deploying and managing modern applications has therefore becomes unsustainably complex and a new approach is needed where the infrastructure is smarter and it can take on some of the burden that historically human beings had to shoulder. That's why we are calling our product the very first application-defined data center software. It is the next evolution of the software-

defined data center which brought a lot of efficiency and cost effectiveness to the enterprise. We feel what's required to move to the next level is technology that is much smarter.

FocusonContainers.com: You use the term, "application-defined data center." Based on our research we've become advocates of what we're calling a "work-load centric" approach. Is this the same thing?

Sushil: Yes they are exactly the same things and one can use the terms "application aware" or "workload aware" infrastructure interchangeably. Robin is a smart, software-only converged infrastructure (for the lack of a better term), that marries container-based virtualization with an application-aware or workload-aware storage layer. There is a built-in application networking layer, but the most unique aspect about Robin compared to others is that we have baked application orchestration and lifecycle management intelligence right into the infrastructure layer. And this goes far beyond what regular orchestration tools do - meaning it*'s not just about automating initial application deployment, it's also about how can we simplify scaling, how can we simplify backups, how can we simplify failure recovery, and how can we make it easy for people to create a test environment by cloning production, and so on*.
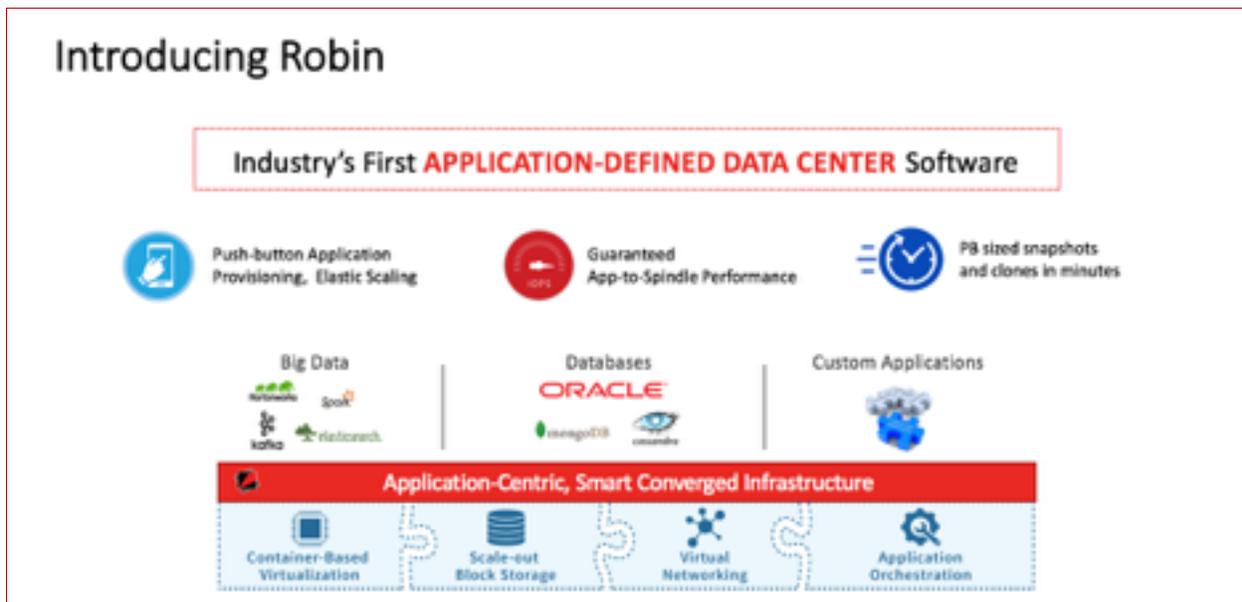
Our initial go-to-market focus is on data-heavy applications such as big data and databases. Robin can provide a significantly more performant and predictable quality of service platform for virtualizing databases, as well as any performance-sensitive application – whether it is modern (microservices-based) or a traditional enterprise application. In contrast to traditional hypervisor-based virtualization, Robin runs databases and applications with bare-metal performance and delivers significant better consolidation density.

The other big operational day-to-day challenge that our workload-aware infrastructure helps address is that of delivering a predictable quality of service. Thanks to the knowledge of application topology and its desired quality of service at every layer of the infrastructure stack - compute, network, storage – Robin can guarantee application performance and QoS SLAs for any application.

Finally, we live in a world where we cannot do things fast enough, and enterprise agility could be a key competitive differentiation. Robin automates and accelerates application deployment and lifecycle management allowing you to deploy even a complex application such as Hadoop or Cassandra in a matter of minutes.

To sum it up, our vision is to transform the traditional data center infrastructure – which has little to no application awareness, where application deployment is complex, the quality of service delivery is a challenge, there is little to no elasticity and then life cycle management operations are complex — into a smarter, application-aware computing platform that enables agile application delivery, delivers predictable user experience, and radically simplifies operations.

For a typical web, mobile or IoT application, Robin can accelerate the time to market by 3x to 5x, and that's a very conservative figure. Customers can consolidate databases or Big Data clusters without compromising performance or predictable QoS, which can typically reduce hardware footprint and database software licensing costs by 50 percent. And thanks to application lifecycle management automation, Robin decreases operational costs as well.

FocusonContainers.com: Can you support stateful applications?

Sushil: Yes, in fact that's our strength. Stateful and data application is where our value prop is most obvious. Unlike other container-based products that are primarily designed for stateless cloud-native applications, Robin can run your mission-critical enterprise applications within containers as well. Case in example: Robin is the only container-based platform that can help you consolidate Oracle databases with bare-metal performance and guaranteed QoS.

Robin also provides customers with the choice of a flexible convergence model. Robin software can be configured to decouple compute and storage which enables independent compute and storage scaling and as well as centralized data management. In the absence of such flexibility you may end up wasting compute resources for more data storage capacity or vice versa. This is one of the several reasons that classic hyper-converged infrastructure which tightly couples compute and storage is not always the best choice for Big Data applications. On the other hand, if you really like the simplicity of the hyper-converged model, Robin hybrid nodes allow you to collocate compute and storage on the same physical server.
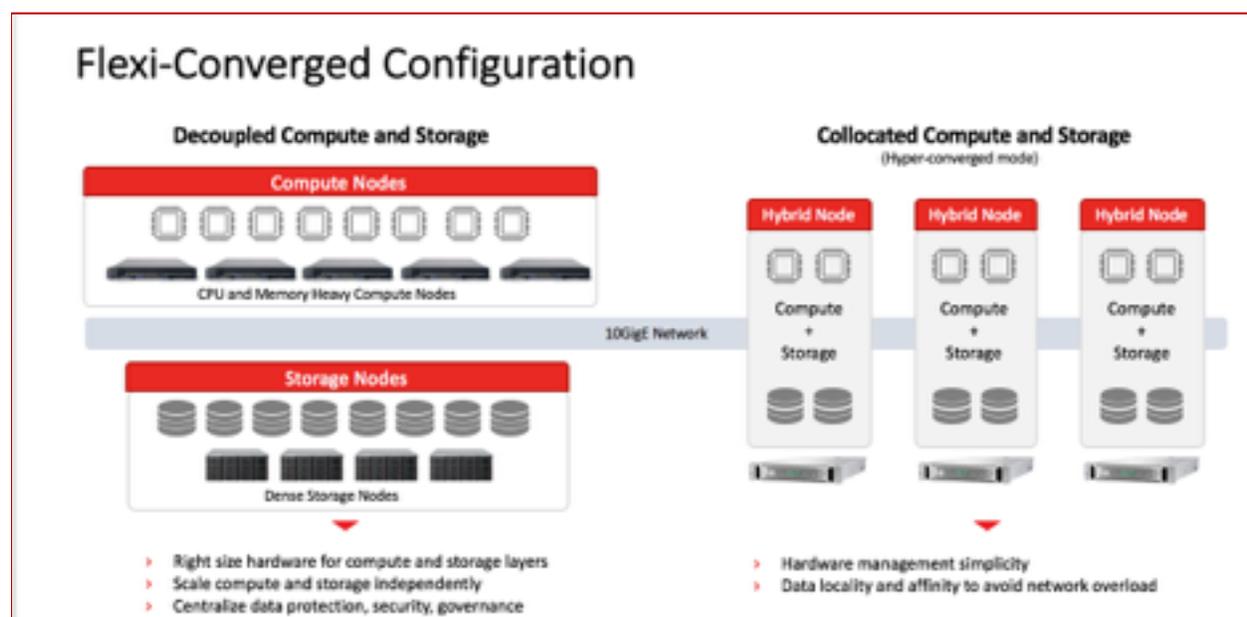
FocusonContainers.com: In situations where you want to mix workloads that have a hard SLA with others that are more latency tolerant, how do you handle demand management and resource governance?

Sushil: Good question. We have several knobs when it comes to resource and quality of service management. You can of course dedicate a certain amount of CPU and memory resources per application, but that's the easy part. Controlling IO resource allocation is typically the harder the problem and we address that by having application-level MIN and MAX IOPS controls. This enables you to cap the amount of resources that can be consumed by a single application and prevent resource starvation for other applications. The minimum resource guarantee, on the other hand, ensures that your mission-critical applications always have the required minimum to deliver the acceptable SLA.

R*obin IOPS Demo Video*: https://vimeo.com/171608156

Video iFrame Embed Code

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If you have multiple applications with a similar kind of resource limit, we have a notion of application priorities to determine the order in which the resources are offered to the applications. You can designate an application from 0 to 5 and this enables us to prioritize resource allocation within the application of the same line of business, or the same class of service.

Finally, we also have this notion of resource pools that enables us to hard partition resources among applications. As such, even though you may have one humongous cluster that is made of hundred nodes, you can subdivide those hundred nodes into multiple resource pools to wall off application belonging to different LOB, different performance characteristics or even to ensure software license conformance.

FocusonContainers.com: Do you have any dynamic capabilities? Some of the companies that we've interviewed describe patterns, e.g. end of the quarter, or the end of the semester, or the Black Friday scenario with dramatic increases in loads. Can you dynamically adjust priorities?

Sushil: Yes. It can be done on the fly as well as on demand. You can either define a calendar-based schedule or threshold on a workload metric to automate resource scaling.
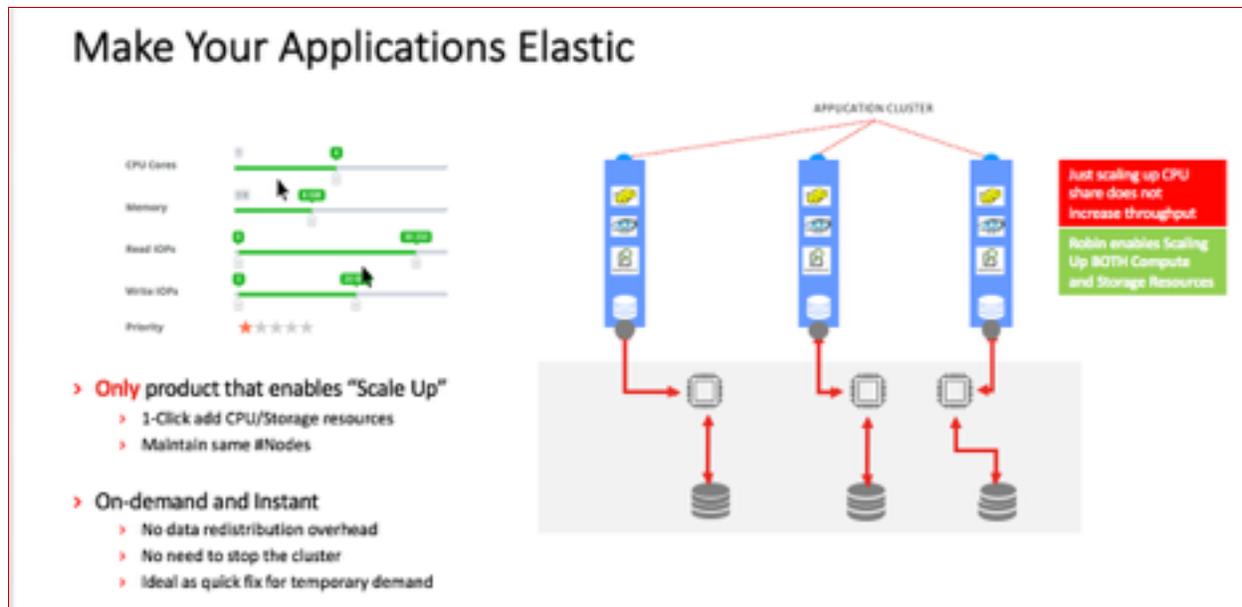
FocusonContainers.com: Would you use the term "enterprise readiness" to describe that?

Sushil: Yes. That is one term that aptly describes what we do, unfortunately I don't see any startup that doesn't claim their product to be enterprise ready. But yes, this is a truly enterprise-ready product.

FocusonContainers.com: We spend most of our time interviewing customers who are buying these types of solutions and they are saying that the developers love it, but ops and production have different motives and are much slower to accept — that DevOps still is more Dev than Ops today.

Sushil: That's absolutely correct, 90 percent of the container ecosystem, is more dev than ops. In that sense, we are more ops than dev. We are bringing containers to the enterprise data center and that's why our initial focus has been on on-premise product. Customers will soon be able to use Robin in the Cloud. But we will continue to remain very enterprise centric with a razor-sharp focus on workloads where performance matters, predictability matters and the data protection and resilience matters.

FocusonContainers.com: We've learned in our research that most of the early mindshare has gone to Docker and Kubernetes and it's not until after they actually start using Docker and Kubernetes when they begin to understand the limitations of just working with Docker containers.

Sushil: Absolutely. And that's a little bit of a challenge for us as you can imagine. Our approach is quite simple though. We honestly explain to customers what they can get from open source and what they can't. If the open source tools can do the job for customers, we don't even try to sell them our product. In most cases, we find that customers did not fully understand the limitations but once they hear about what Robin brings to the table, the discourse changes completely.

FocusonContainers.com: We recently published a paper on this exact topic called Workloads Matter.

Sushil: I read it. I think one of the things that caught my eye was the stateful application and how LXC is a preferred container format choice for stateful applications. Robin supports both LXC and Docker and we leave the choice to the customer.

FocusonContainers.com: One of the reasons we wanted to talk to you is that there's a number of companies that we're trying to understand better, you are one, Cluster HQ, Mesosphere, Rancher, Joyent, that are all addressing enterprise readiness of the container ecosystem and we're interested in understanding how you fit into that category.

Sushil:

Well, there are some table stakes features such as basic container orchestration, storage volume plug-ins, which orchestrate the creation of storage volumes, as well as the initial application deployment. I call them undifferentiated table stakes and this is what nearly all the competing products that you mentioned do. Some do more than others.

But where Robin outshines them is anytime you have a highly performance-sensitive application, high-data-volume application, stateful application, or mission-critical enterprise application. Whenever you need guaranteed predictable SLAs, whenever you need the simplicity of push-button full stack or clustered application cloning, and so on — these are the hard problems that only Robin addresses.

The reason Robin offers so much more is because of deep and highly differentiated IP at the storage layer. Our application-aware scale-out block storage is the very first storage sub-system that is purpose built from scratch for containerized applications. This is in sharp contrast to existing storage products that are simply not designed to handle the container scale and agility. For instance, containers come and go in a matter of seconds. So, we have created a storage paradigm where volumes can be created in seconds – as opposed to the several minutes that existing storage products require. Similarly, the number of volumes needed in a containerized environment is 100 times larger than what current storage systems are designed to handle. And since storage products don't have any compute size presence and application awareness, they can't provide capabilities such as application-level quality of service guarantee, distributed snapshot and cloning. As such we are not only enterprise ready, we can run on any kind of workload with high performance and low latency. But the application awareness that we bring to the table is the single marquee differentiator compared to everybody else.

FocusonContainers.com: What is your approach towards bursting to cloud and flash cuts between multi-clouds?

Sushil: That is something that we are actively working towards. We hope to deliver this soon because our customers are asking us for that. Everybody is looking at how they can create a more amorphous data center that seamlessly spans across an on-premise data center as well as the cloud. This is a hard technical challenge but our application-centric infrastructure technology which abstracts applications and data from the underlying infrastructure provides the most practical solution to this problem.

FocusonContainers.com: I have one final question. When we interview enterprise customers one of the common issues that comes up is that in these highly virtualized, highly pooled environments troubleshooting becomes difficult and they still have a need

to pinpoint problems down to a specific rack and a specific shelf and a specific rack. Can you talk about that?

Sushil: That's a very valid problem. And it is too broad a problem for any single vendor to resolve in entirety. But Robin certainly makes this a lot less painful. First, because we manage application and infrastructure holistically, we understand exactly which rack, which machine is a request going through. Second, we aggregate logs and metrics across the entire application stack which provides users with a single place look for the diagnostic information for all application components. The next level will be to use machine learning to automatically identify the problem root cause or the biggest bottlenecks and even provide resolution recommendations wherever possible.

FocusonContainers.com: Thank you - you've done a great job telling your story.

Sushi - Thanks Larry.