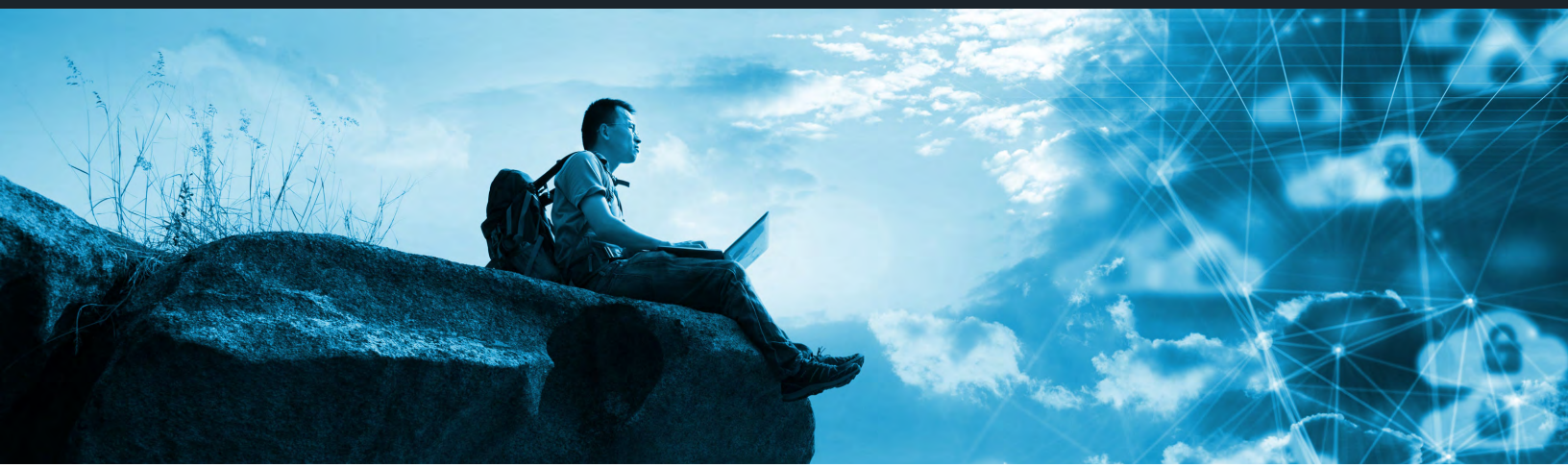
RackWare

RackWare Hybrid Cloud Platform

The Only Solution to Unifying Physical, Virtual and Cloud Services into a Single Platform

WHITE PAPER

Contents



Executive Summary

RackWare Inc. was founded in 2009 with the goal of helping Enterprises reap maximum benefit from the Cloud. The primary use cases targeted by RackWare's Hybrid Cloud Platform are Migration, Disaster Recovery/Backup, and Hybrid Cloud Management. RackWare's Hybrid Cloud Platform has matured as the Cloud has evolved and is now on its 7th generation software release. This document describes the challenges and opportunities Cloud presents to the Enterprise, and how the RackWare Hybrid Cloud Platform enables the Enterprise to make the most of what Cloud has to offer.

Enterprise Adoption of Cloud Infrastructure

It's thirteen years since Amazon's AWS launched in March 2006, closely followed by others such as Google, IBM, Microsoft, and Oracle Cloud offerings. Although Cloud Services are maturing, it is clear that Enterprise adoption of Cloud is still in its infancy. Certainly, most Enterprises are using Cloud to some degree, but the percentage of Enterprise workloads running in the Cloud is still limited. Gartner estimates that the Enterprise Cloud market is expected to grow from $31B in 2018 to $63B in 2021. As Cloud offerings mature, the potential growth opportunity from Migration, Disaster Recovery as a Service (DRaaS) and Hybrid Cloud are enormous. RackWare's Hybrid Cloud Platform is purpose-built to enable Enterprises to achieve its Cloud adoption goals.

The main factors that drive Cloud Adoption are:

1. Ability to seamlessly and quickly migrate workloads into the cloud without rewriting applications.
2. Ability to take advantage of Cloud's elastic resources to deliver a cost-effective solution for Disaster Recovery.
3. Ability to closely manage and control all aspects of Cloud usage in a multi-cloud/ hybrid environment.

Cloud Adoption Challenges

Enterprises should only adopt Cloud infrastructure if there is a clear benefit, and an important set of requirements to be met. Those criteria include:

1. **Security** — The cloud needs to be at least as secure as current Enterprise data centers.
2. **Performance** — Workloads need to run at least as well in the cloud as they do in the datacenter.
3. **Function** — The cloud needs to provide a commensurate set of functionalities relative to the Enterprise datacenter.
4. **Cost** — The cost of running workloads in the Cloud needs to be less than the cost of the Enterprise datacenter. Additionally, the Enterprise needs full visibility into cost and a comprehensive way to manage it.
5. **Migration** — Enterprises need workload mobility, seamlessly moving workloads into and between clouds, at minimal cost and with minimal downtime.
6. **No Lock-in/Mobility** — Enterprises need to know it is not at the mercy of the Cloud provider, that it can seamlessly move its workloads to other Clouds or back to a data center based on the value and the performance it expects.

Only after assessing the above core criteria will an Enterprise decide whether Cloud computing is right for them. The Cloud provider needs to convince the Enterprise of the benefits of adopting Cloud. RackWare's Hybrid Cloud Platform eliminates many hurdles that up to now have restricted Enterprise adoption of Cloud.

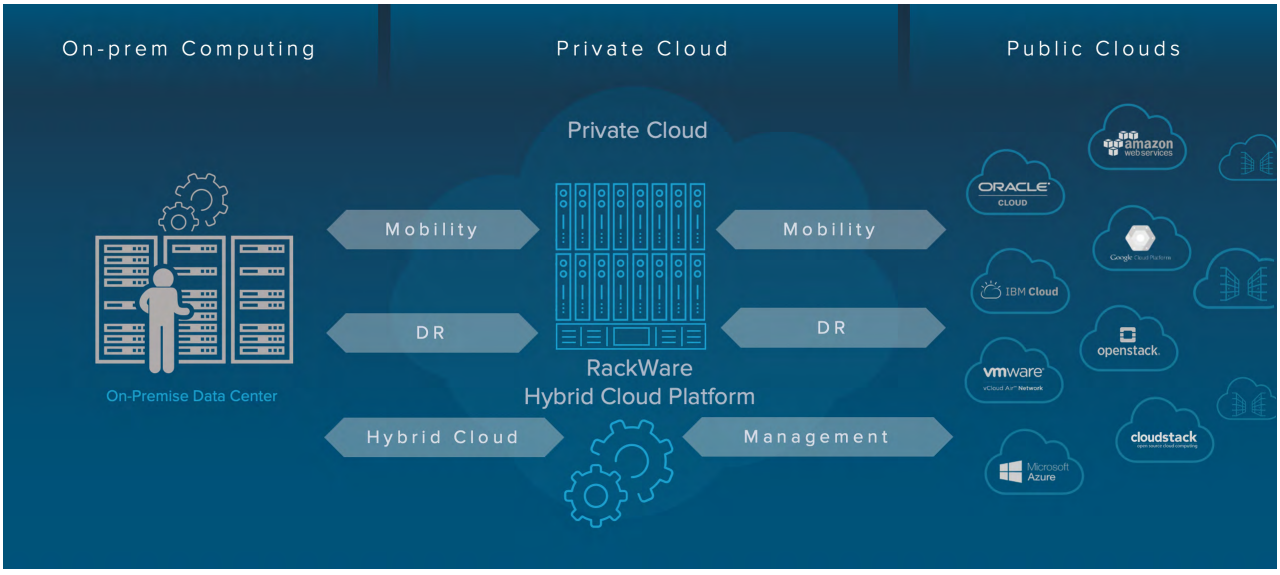
Introducing Rackware's Cloud Management Platform

RackWare's Hybrid Cloud Platform (HCP) is a multi-function solution that enables Enterprises to Migrate workloads to the Cloud, configure Disaster Recovery and provide comprehensive Oversight and Management of all Cloud resources (Hybrid Cloud Management). HCP is a distributed software solution that runs on Linux virtual machines. The real value in RackWare's HCP lies both in the breadth and depth of its capabilities. There is no other single solution in the industry that competes with the range of capabilities found in RackWare HCP.

When it comes to Migration, most other solutions are limited to specific hypervisor types and/or specific clouds. In addition, most migration products cannot handle the complexity found in a typical Enterprise data center. The type of complexity enabled by RackWare not found in other solutions includes:

- Physical servers
- Clusters
- Large databases
- Network Storage
- Full confluence of cross hypervisor and Physical workloads
- Right-sizing

From a DR perspective, those same complexities are handled by RackWare's solution. Also, for DR, RackWare's ability to failover and fallback (including Physical to Virtual, and Virtual back to Physical) is one of the unique differentiating capabilities.



Solutions

The core of RackWare's Hybrid Cloud Platform is a set of purpose-built replication and sync technologies that enables HCMs unique feature set for all workloads. When coupled with the robust Management layers in HCM, Enterprises can take full advantage of what Cloud has to offer.

Features and capabilities fall into the following categories:

- Organizations and Users
- Audit trails and Reporting
- Budget Management and Forecasts
- Templates, Deployment, and Security Levels
- Deployment Ubiquity
- Integration with VMware
- Management Approval Workflow
- Compute Resources, Metering, and Costs
- Operations and Self Service
- Optimizations
- Policy and Alerts

Hybrid Cloud Management

RackWare's Hybrid Cloud Management is a complete solution for organizations having resources across a wide variety of environments with requirements to maintain and manage legacy systems, yet seamlessly utilize newer technologies such as cloud, to realize flexibility and cost benefits. To effectively face this challenge, HCM allows organizations to manage and control costs with structures in place for self-service, audit trails, reporting, and continuous economic optimizations. HCM enables organizations to safely evolve to cloud technology while bridging the gap between mission-critical legacy environments and greenfield deployments.

RackWare's HCM solution has a broad application, with benefits to Production, DR, QA and Performance Analysis workloads in addition to Test/Dev. HCM provides IT Management complete control over cost, security, and performance.

The RackWare HCM software manages resources and how those resources are used, spanning data centers, private clouds, and public clouds. Overlaid on top of resource management is an architecture for managing organizations and users with budgets and approval mechanisms. With HCM, hierarchies of Organizations (Orgs) and Users can be defined with highly granular Role Based Access. Permissions and approval structures can be applied and enforced across the hierarchy or Organizations and Users with detailed Audit logs.

HCM is also designed for cost optimizations through workload monitoring and analysis, and illustrative provisioning and deployment models. AutoParking, and AutoScaling easily and effectively save cost by consuming compute resources only when needed.

In many environments, workloads running in the cloud are not required 24/7, but rather at particular times throughout the day, week or month. Substantial cost savings can be obtained for customers by employing strategically timed parking and unparking of cloud resources. Automated parking and unparking of resources, in any environment, at critical pre-determined times ensures adequate capacity during peak periods and cost savings during non-peak periods.

Robust policy engines and alerts across all capabilities complete the picture of true Hybrid Cloud Management.

RackWare Disaster Recovery has the following capabilities.

- Automatic or Manual Failover
- Auto-Recovery/Fallback (enabled by our true any-to-any replication/ sync technology)
- Failover Test/Drill mode (completely non-intrusive to Production workloads)
- Boot order adherence
- Pre and Post script orchestration allows automation of post-replication tasks

Disaster Recovery / Backup

Business Continuance via Disaster Recovery is an essential element of IT and takes on many forms. The high end consists of high availability solutions that provide real-time replication of systems. While these systems provide seamless continuity during outages, they are large, complex, and expensive. At the other end of the continuum, however, Disaster Recovery is little more than tape backup or backup to NAS which have complicated and lengthy restore procedures which take hours or days. Most Cloud solutions are little more than a slow VM import process from some form of a backup.

A major improvement can be achieved in disaster recovery with a solution that simply extends the existing IT architecture into the Cloud. With its elastic, on-demand and geographically dispersed resources, Cloud is the perfect vehicle to deliver DRaaS and Backup services. RackWare's Hybrid Cloud Platform makes use of our proprietary replication technology to deliver Disaster Recovery with minimal RPO and RTO while allowing the user significant scope for adjusting parameters around cost and performance.

Although Cloud provides the perfect landscape for Disaster Recovery implementations, one of the inhibitors to growth has been the ongoing cost of operations to run Cloud as a DR site. Most Disaster Recovery solutions require the workloads to be up and running in the Target location, incurring huge costs. For many Enterprises, when faced with the choice of substantial costs versus long RPO and RTO times, they've had to settle for the long RPO and RTO times. RackWare's Disaster Recovery solution has both Pre-Provisioned and Dynamically Provisioned options, allowing the intelligent balance of cost and performance relative to workload priority.

Pre-Provisioning allows users to have DR workloads up-and-running in the DR site, with near-continuous replication allowing RPO and RTO times in single-digit minutes. Dynamic Provisioning allows users to replicate workloads to storage in the DR site. Dynamic Provisioning eliminates the compute and memory costs of running workloads, while still allowing for aggressive RPO and RTO times.

Many of our Customers choose to Pre-Provision their critical workloads and Dynamically Provision their less-critical workloads. With this approach, our Customers have been able to reduce DR costs by over 80% relative to other vendors.

RackWare's DR Sync Policy engine provides unparalleled configuration options enabling the user to sync to the DR site at the desired rate, whilst also allowing for black-out periods where syncs can be automatically paused (for example, if the user does not want to Sync at the same time a local backup event is scheduled to run).

Cloud Migration

RackWare's Hybrid Cloud Platform Mobility feature leverages the proprietary replication and sync technology to allow Migration of workloads from any Datacenter or Cloud to any other Datacenter or Cloud. RackWare Migration does not require any access to the Hypervisor and does not install any Agents on the source servers. Key features of RackWare's Migration are

- Comprehensive Discovery and Analysis of the source environment
- Auto-generation of Migration Wave Plan from Discovered data
- Replication and Delta-syncs are non-intrusive to source/Production servers.
- No access to Hypervisor required
- No agent installs on source servers
- Auto-provisioning into all major Clouds
- Automatic Right-sizing of target servers
- Minimal (minutes) downtime during Cutover

Rackware Advantages

RackWare Hybrid Cloud Platform has many advantages over similarly positioned solutions. Primary among those are

- Transaction consistency of workloads that have been migrated or failed over.
- True any-to-any replication. All cross Hypervisor and Cloud confluences are supported. Importantly this includes the ability to handle Physical servers, Physical to Physical, Physical to Virtual, and Virtual back to Physical.
- Ability to handle all aspects of a complex Enterprise datacenter (clusters, network storage, databases, tiered applications, etc.).
- Replications are file-system (not storage) based which means only used data is replicated and synced. This enables right-sizing of storage and much better post replication and sync customizations such as cleansing unnecessary management applications or gluing together important infrastructure.
- HCM does not rely on Cloud services and utilities; it uses its own technology to execute functions. Only provision and configuration APIs are used in the Cloud. This creates uniformity and consistency of operation in a hybrid/multi-cloud environment.
- Ability to do cost-effective Dynamic Provisioning for DR deployments.
- The unique AutoParking and AutoScaling across clouds enable efficient economic models.
- HCM allows the granularity of Selective Sync where selected drives, directories, and files are synced. There are many use cases for migration and DR for selective sync. Excluding backup drives, for example, improves RPO for DR, and reduced the cutover time for migrations.

Conclusion

RackWare's Hybrid Cloud Platform differentiates itself from all other Hybrid Cloud Platforms in its unique ability to both provide management information and control as well as by being capable of completing tasks dictated by the Management layer. RackWare's HCM not only provides the data needed to oversee an Enterprises Hybrid Cloud deployment, it also provides the ability to take advantage of that data in a true any-to-any Hybrid Cloud environment.

About RackWare

RackWare provides an intelligent highly automated Hybrid Cloud Management Platform that extends across physical and virtual environments. It provides greater availability and flexibility for enterprise IT users, and reduced costs for enterprise IT providers. Supporting a suite of services including Disaster Recovery and Backup, Hybrid Cloud Management, and Cloud Migration and Replication, computing resources—physical, virtual, and cloud machines—can be easily and automatically scaled up or down as demand fluctuates. RackWare customers realize a cost savings of 40 to 50 percent, a reduction in time and resources by 20:1, while getting the highest performance and availability out of their cloud. RackWare is a well-established private company supporting customers from the Fortune 500 and large public agencies, around the globe. The company is based in Silicon Valley with Support and Development teams in Salt Lake City, and Pune India. Learn more at **www.rackwareinc.com.**