

# Plan for Cloud Migration with VMware vRealize Network Insight

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## IN THIS PAPER

Migrating applications to the cloud can trigger panic attacks among IT staff. But it doesn't have to be that way; not if you let VMware's vRealize Network Insight do the heavy lifting of understanding your application topology and dependencies.

Highlights include:

- Increase agility, speed of delivery, and scalability by moving to the cloud
- Which parts of the application are suitable candidates in terms of security and bandwidth consumption
- Map application dependencies, minimize risks during migrations

Migrating applications can be a scary process, fraught with dangers both real, and sometimes, imagined. Things often break during migrations, and the fear is that, like Humpty Dumpty, they can't be put together again. That's why it makes sense to bring in a trusted partner to help with the hard stuff. VMware vRealize® Network Insight™ is that partner.

When you're going to migrate applications to the cloud, the most important thing to know is which moving parts are involved, and how they'll react to the migration changes. A thorough knowledge of the topology and dependencies of your application is a key factor in successfully migrating an application to the cloud, especially in hybrid cloud scenarios where an application stretches the on-premises data center and a public cloud VPC.

**With vRealize Network Insight, answering some of the hard questions around application topology and application dependencies is a lot easier.**

To that end, understanding the application you're about to migrate from a networking perspective is crucial. With vRealize Network Insight, answering some of the hard questions around application topology and application dependencies is a lot easier.

In the bi-directional complexity of external services (or users) accessing an application, important factors include networking routes/topology, external resources the application needs to function (and where those run), and the bandwidth requirements of each of these relationships.

While determining which applications, app tiers, or components need to be migrated together, a proper migration scenario necessitates dependencies outside of the group you're migrating. The trick is to minimize those dependencies (in terms of bandwidth and traffic flows).

There are many reasons why an application should move, including performance, resilience, availability, cost, security, adjacency to services only offered in the cloud,

adjacency to the edge where the application's users are, and more. Sometimes the underlying infrastructure just reaches its economic and technical end of life.

Whatever the reason, the advantages of moving applications to the cloud are abundant, even when it's as simple as lifting and shifting applications from on-premises infrastructure to cloud infrastructure.

## Lower Operational Risks

By leveraging the visibility into application dependencies and traffic flows between application components, admins can start drafting the boundaries of applications (or application components with larger applications) that need to be migrated together to minimize risk.

Migration risk normally comes down to the way that changing topology impacts an application, or the impact of changes required during the migration. We'll take a look at both.

## Changing Topology Impacts Application

Risks in changing topologies usually involves three factors: latency, bandwidth, and security.

When moving only parts of the application to the cloud, latency between components can change. While in many cases this should not constitute a problem, in some cases, latency can in fact cause issues. This is often seen in storage-related traffic flows.

**Using vRealize Network Insight to mitigate this risk by understanding the flows between tiers can prevent unexpected cloud costs.**

Another consideration when changing the topology of applications by migrating only part of the app is bandwidth. With egress traffic from the cloud being taxed, traffic between application tiers can become expensive.

Using vRealize Network Insight to mitigate this risk by understanding the flows between tiers can prevent unexpected cloud costs. In addition, migrating only parts of the application can put traffic load onto an ill-sized interconnect between the cloud and an on-premises data center.

More broadly speaking, changing the topology during migrations may trigger certain limitations or bottlenecks that weren't an issue before. Limits and bottlenecks exist in many forms, from blocked ports to limits in the number of VMs, to limits outside of the networking realm.

To get visibility into application components, tiers, and the interaction of traffic between them, use the Application constructs to identify bandwidth requirements, and size interconnects and bandwidth allocations (and cloud contracts) appropriately.

### vRealize Operations Manager

In addition to gaining visibility into the networking aspects of workloads, companies should consider using vRealize Operations Manager to get visibility into compute and storage requirements. Its built-in Migration Planning feature helps you do capacity planning and cost analysis for AWS, VMware Cloud on AWS, Microsoft Azure, and other clouds.

## Changes During the Migration

Migrations are often done on an application-by-application basis. These types of migrations introduce complexities during migration, like the need to stretch layer-2 broadcast domains between the on-premises data center and the public cloud VPC.

Stretching VLANs across data centers can have significant impact, and the act of stretching itself, if not done correctly, can introduce network outages, or have an impact on latency, bandwidth, or cost. Stretched VLANs are susceptible to many different kinds of outages, so they require significant hand-holding and monitoring.

## HCX Is the Go-To Tool for Migrations

[VMware HCX](#) is a migration tool for virtualization workloads, often used to move workloads to VMware Cloud on AWS. When coupled with vRealize Network Insight, cloud migrations become much easier and highly automated.

HCX takes the insights from vRealize Network Insight, like application boundaries and dependencies, and groups workloads into migration waves to minimize the impact of cloud migration.

The [automated integration](#) between vRealize Network Insight and HCX means transitioning information from vRealize Network Insight to HCX is no longer an error-prone, manual process. Instead, the automation transfers vRealize Network Insight application insights into HCX Mobility Groups.

HCX's true power lies in its ability to seamlessly extend existing, on-premises, environments to the public cloud, allowing workloads to move without changing any networking properties like IP addressing.

This is a major advantage for traditional applications that were not designed for dynamic environments. HCX helps breathe new life into these (often mission-critical) applications. In addition, HCX actively optimizes traffic flows to and from these applications (with features like Proximity Routing) and allows migrations between incompatible versions of vSphere.

### NON-TRIGGERING MIGRATIONS

As you've seen, migrations don't have to be anxiety-inducing events that make admins wake up sweating in the middle of the night. Just be prepared with the right tools beforehand, and you'll end up with a smooth-running process that will let you relax, knowing the job will be done right.