Managing the Modern Cloud

10 Ways Movere Can Be the Seamless Path to Getting to and Managing the Cloud

Technical White Paper

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Today's Demand for the Cloud

Cloud computing is an elastic platform allowing users to increase or decrease computing needs on demand. We no longer need to predict future infrastructure needs, concern ourselves with warranty cycles, build data centers, or invest in reserve capacity. Now we need to focus on items specific for cloud computing like system performance, calculating the correct VM size to deploy so that we only pay for what we need, identifying migration candidates, and how to leverage features that can accelerate cloud adoption without risking performance due to the learning curve a new computing platform presents to all users.

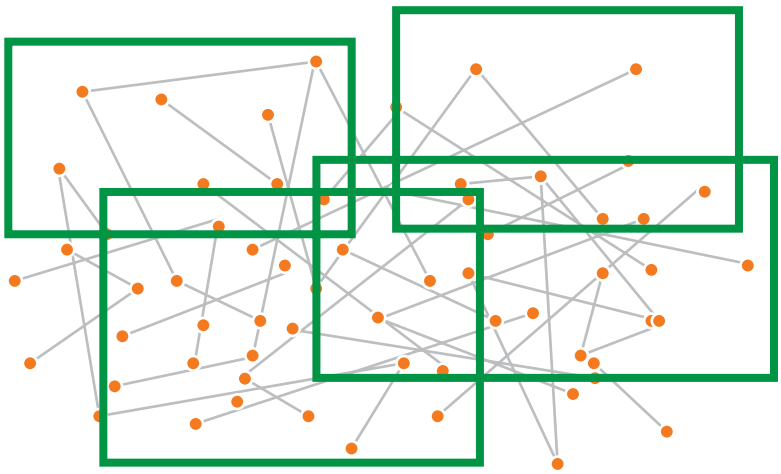
1. Landscape - Discovery

Movere provides a unique take on traditional "discovery". Many platforms discover data based on specific queries or directed explorations in order to gather data and deliver it back to the user. However, Movere is undirected. Movere has the ability to explore and detect a business's environment the same way that a doctor may inject dye into a patient's blood in order to view veins within their body. Movere is unguided and self-discovering, so it is able to detect information that a business may not have even been aware of. It is agnostic to geo location, domain, platform, hardware, etc. and is able to relay back comprehensive data.

Getting to the Cloud

2. Profiling

Movere takes data and allows the user to create beautiful, intelligent methods for segmenting the data to make comprehensive and informative reporting. The raw data Movere collects including Active Directory, vCenter, VMM, Hyper-V, XenServer, SCCM, Altiris, LANDesk, LanSweeper, BigFix, SharePoint, SCOM, SCDPM, Exchange, Lync, etc.* and is integrated and analyzed automatically. There is no human interaction with the source data from its collection through to its presentation on the Movere website so it cannot be altered. While the raw data cannot be altered, custom profiles provide customers with the ability to group devices, assign licensing vehicles, or even exclude devices and users from the analysis entirely.



A few examples of ways users can use the raw data include:

- Location prioritization (closing a data center)
- Platform prioritization (retiring older version tech ESX 4.0)
- Hardware and processor aging
- Continuing supporting agreements

IT data is complex and represents many different elements and interconnections like hypervisors, operating systems, applications, users, consumption, domains, subnets etc. We capture and present the entire picture then you decide where the frame(s) go. The frames are persistent, meaning you can create it once and use again and again.

3. Identifying Need vs. Actual and Proving TCO

Movere takes incredibly complex and expansive data and has the ability to transform it into valuable business insight. Movere can capture Windows and Linux actual resource utilization, calculate the performance needed to satisfy peak demands, then identify the cloud VM profile that will most economically meet that need.

Performance

Administrators use performance data to better understand how their systems are performing and identify where bottlenecks are occurring, i.e. insufficient memory, low disk IOPS, etc. Managing servers is a never ending resource management exercise with administrators constantly tasked with improving performance, redundancy and up-time, while at the same time lowering costs. With performance and cost always being at odds, administrators regularly find themselves fighting to hold the dam of improving the individual performance of each of the items above; in step with one another and within budget.

Cloud sizing:

A big impediment to moving into the cloud is deciding on the size of the device to build to avoid paying for

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resources that aren't being utilized. This was a lower priority with on-premises implementations as infrastructure was viewed as a sunk cost. Plus, over-provisioning memory or processing power was not deemed to have an incremental cost versus cloud computing where the clock, in terms of cost, is always ticking and over provisioning is akin to pouring money down the drain. The problem is, just like finance and sales systems of the 90's, assumptions in terms of pricing, inventory volumes and distribution needed to be made based on human assumptions as operational data could not be delivered to end users prior to decisions needing to be made.

The same phenomenon affects us today when we consider moving part or all of our infrastructure to the cloud, what size(s) should we use, what region should they be built in, what dependencies exist that could break applications if they are no longer available.

Upgrading, Consolidation and Site Recovery:

Movere identifies which systems can be upgraded, which systems are outside of extended support potentially invalidating support contracts with other vendors, which systems are no longer even being used, which ones have levels of usage so low that consolidating several devices into one would have little if any impact of performance, which ones could make use of additional resources, and which ones could leverage features like Azure Site Recovery.

Forcing Function

Historically, organizations have simply gone out and purchased a new physical host when out of resources, or worse still, massively over purchased upfront to achieve a volume discount. Spinning up servers produces over provisioning, which then finds its way to the cloud when inventories occur for the on-premises footprint and gets moved to the cloud, which will drive up costs. So 1) do we still need the system, 2) do we need to build it that big in the cloud if we do need it and 3) decide to move it and finally who keeps an eye on things once they are in the cloud. Potentially, 25% of the customer's server footprint is completely unused and could be retired immediately. For example, we needed to spin up just one more server, so we looked at everything else running on the host and found two servers we didn't even need. We powered them off and had the capacity we needed. In the cloud, this won't exist. If customers are periodically monitoring usage then servers that are no longer needed could sit in the cloud driving costs up indefinitely. This is the need Movere fills once in the cloud.

4. IOPS and Throughput

Businesses have the continued struggle of ever-evolving updates and releases. Especially when it comes to cloud providers that are releasing new sizes, there is always a need for a re-done analysis. This is especially true as far as how IOPS and throughput are factored into VM profiling.

Movere captures the amount of data in MB sent and received from the device between ARCBeats. There is a maximum aggregated bandwidth allocated and assigned to each VM type in Azure so an understanding of the levels of throughput is essential when selecting the right VM type to ensure adequate network capacity is available.

Being a SaaS solution, the profiling on Movere is always up-to-date. As soon as Azure offers new VM sizes, Intel/AMD releases new chips, or software vendors make new versions available, Movere will update its Azure

VM size and storage requirements.

5. Storage

Movere uses two data points to differentiate between Standard and Premium storage needs:

Maximum input/output operations per second (IOPS): The maximum number of reads AND writes to non-contiguous storage locations between ARCBeats. The higher the number, the faster the device is able to read AND write data to and from disk in a single operation.

Maximum Throughput: The maximum amount of data in MB sent AND received from a device between ARCBeats. The higher the number, the greater the devices bandwidth needs. This impacts cloud sizings as there is a maximum aggregate bandwidth allocated and assigned to each VM type. An understanding of maximum throughput will help make sure adequate network capacity is available.

The ARC collects disk performance data for both local and network attached mounted storage. Movere uses this data to calculate IOPS and throughput, then maps these results to Microsoft's Premium Storage Disk Limits.

Movere presents a combined IOPS/throughput result across all disks mounted to a device. Individual disks can be deselected and the disk consumption visualization will re-calculate. This is particularly useful when looking at devices with backup drives. Disk usage may spike during nightly backups giving the impression that Premium Storage is required.

If a disks' maximum IOPS exceeds 500 during a single ARCBeat, then Movere will recommend Premium Storage. For throughput, Standard storage delivers up to 60 MB per second while Premium starts at up to 100 MB per second. In addition to this, Movere also captures the software installed on each server it scans and flags products as high-IO (i.e. SQL, Oracle) or low-IO (i.e. SharePoint, IIS, etc.). Based on this, Premium vs. Standard storage is recommended using the actual amount of non-OS storage attached to each server.

6. Region

Movere shows device and license counts geographically. It can also be used to pinpoint allocation usage, show devices using non-standard or unsupported software, and more. Movere can then group systems by geography, assess device and license count by country and confirm the subnet range(s) in use at each location.

7. ASR - Azure Site Recovery

Movere can identify systems that are already Azure-ready as well as those that can leverage features such as Azure Site Recovery.

Each inventoried server is benchmarked using several inputs including: CPU and Core counts (accurate even for Windows Server 2000, 2003 and 2003 R2), performance data for each Intel/AMD chip on the market (updated monthly), capacity calculations specific to platform i.e. physical or virtual, RAM, Disk and Network interfaces etc. Using these inputs, Movere benchmarks every VM size available in Azure (A0 through G5). Using the same

measuring stick, Movere compares the specs of each on-premises server to the sizes available in Azure and recommends the closest match. This is done in real-time without any input from the user.

8. Application Dependency Mapping

One of the biggest impediments of moving Windows and Linux servers to the cloud is understanding application dependencies, especially those that are non-persistent. Each time Movere collects consumption data, it captures the connections (across all possible states) to each device. Each connection is tied to a process and installation path so that each connection can be mapped back to the application triggering it and the user behind that connection. Movere also captures CPU and memory consumption down to the process level so that it can see exactly what type of load that connection/application is driving. If we had no awareness of these dependencies then we would have no way of knowing what will start breaking as our cloud migration unfolds.

Managing the Cloud

9. Continuing Optimization

Movere presents a valuable opportunity for organizations to not just conduct a one-time “housecleaning” of sorts, but to have ongoing optimization. Movere has the ability to re-scan an environment at the click of a button, creating an updated inventory and collection of data points within a fraction of the amount of time it would traditionally take. Plus, this data is then available in its raw form to be applied to any business requirement to analyze and report on. With constant changes happening in the business from new systems, updated software, new employees and licenses, to changes in resource utilization and updates to requirements, Movere makes it incredibly simple to have a pulse on the business in real-time.

Virtualization mapping

Using the customers own virtualization technology, Movere maps automation levels, guest movement, cluster configurations, etc., and teaches customers how to link their configuration to Microsoft’s product use rights.

10. Infinite Business Knowledge

The shift that came with the cloud is that customers went from having a set number of servers, hardware, software licenses, etc. to having an ever-changing and infinite amount of resources at their fingertips. The cloud opens up a whole new ballpark of needing to manage and keep tabs on what is being used, where it resides, how many people are accessing it, where there are utilization spikes or lulls, and how that is changing.

Movere is helping to secure that bridge between finite and infinite and providing the umbrella oversight that IT departments are missing.

Identification of active devices

This may not seem like a difficult concept, but a SAM tool may simply assume a device is active based upon its

discovery in Active Directory. Some companies may choose to leave old device accounts in Active Directory, while others may be required to retain these accounts for a specific period of time. Using several techniques, Unified Logic helps customers identify active devices and map deployments to those devices only. One of the follow-on effects of this is helping customers clean up their directory, which reduces replication traffic, improves the accuracy of the data the SAM tool reports and simplifies management by not having to continually filter out inactive entries.

Time

Many customers dedicate 1-4 IT resources for 3-4 months a year to complete true-up/license compliance related activities. These individuals typically have little, if any, interaction with purchasing and are asked to complete complex licensing calculations based on agreements they typically have never seen nor read. Some of these individuals are aware of the more well-known product use rights e.g. the need for a CAL to access a server product, but few are aware of agreement specific terms e.g. secondary use rights, or technology specific requirements addressed by Microsoft through licensing briefs such as License Mobility, Virtualization and multi-core licensing. These individuals are also required to complete these activities while dealing with existing workloads, which are always top priority. Movere does the same with as little as 1-2 days' worth of effort from a full time equivalent employee, which in many cases is spread across 2-3 customer resources. From the customers' perspective, this represents a large potential saving both now and in the future.

Due Diligence

Merger and acquisition activities affect many organizations. When a licensing compliance assessment takes weeks and months to complete, there often isn't enough time to complete the necessary due diligence. Teaching customers how to quickly and efficiently complete their own assessments going forward will allow them to incorporate licensing compliance into their M&A activities, minimizing the risk of unforeseen compliance issues that weren't addressed up front and could have been factored into the acquisition itself.

Real-Time Resource Usage

At any point in time, Movere can provide an updated scan to show how resources are being utilized. Users can see where they have over-utilization, under-utilization, how that applies to spend and budget, how the 1,000+ data points convert into incredibly powerful business analytics, and so much more.

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