



Data Center Consolidation and Migration Made Simpler with Visibility

Abstract

The ExtraHop platform takes the guesswork out of data center consolidation and migration efforts by providing complete visibility and performance metrics that will show the project's success and risks. By knowing before going, you can avoid unnecessary downtime and be sure that your user experiences remain positive. This paper will explain how using data from the network can be used to map your move, decommission the legacy systems safely, and validate your project's success.

Change Is the Only Constant in IT

Both business events and technology shifts can create the need to consolidate or move data centers. These changes can be alarming for both IT and business stakeholders. Common reasons for data center consolidation and migration, or moving IT environments in general, include:

- **MERGERS & ACQUISITIONS** – When two companies come together and form a new entity, their IT environments must be rationalized as well. Often organizations have an incomplete view of what resides in each data center and it can be challenging to assess the capabilities of both entities and find efficiencies. Additionally, security risks must be identified and addressed.
- **CLOUD** – Increasingly cloud is becoming a more important part of service delivery strategy. Enabling a cloud environment isn't just the simple "lift and shift" but a radical rethinking of how IT operates, moving from a static to an on-demand model. Making sure you realize efficiencies and get at least the same performance in the cloud means having a clear understanding of what it looked like before and after.
- **END OF SUPPORT** – IT teams must eventually move applications to a newer version to continue receiving vendor support. This can be especially challenging when you have built internal applications on top of a platform that must be migrated, as there is extensive testing that is required before even considering moving the application.
- **PHYSICAL TO VIRTUAL** – Once converted to more efficient virtual infrastructure, legacy applications or databases that previously ran on physical hosts provide better performance at lower cost. This transition to virtualization is a substantial one as the initial solution's performance must be tested to ensure it is meeting expectations before retiring the old infrastructure.

These moves come with substantial risk for both availability and data loss if the IT team does not have a good handle on the interdependencies and plan accordingly during the move. To avoid service disruption and ensure data center consolidations and migrations remain on-schedule, IT teams need up-to-date information about what assets are present in the environment and how they relate to one another.

Making Migrations Predictable

It is important to identify potential risk at each stage of your data center consolidation or migration project. Below is a typical migration structure and what occurs at all stages, as well as a look at how ExtraHop can assist at each stage.

DATA CENTER CONSOLIDATION OR MIGRATION PHASES				
Discover	Assess	Build	Migrate	Validate
Collect information on all the assets in the environment.	Determine which workloads are good candidates for migration and their dependencies.	Build-out of the new environment and stabilization ahead of migration.	Executing the move, also known as “flipping the switch.”	Validating that objectives have been met for performance and retiring old systems.
Traditional Approach				
Inventory existing systems utilizing CMDBs, spreadsheets, and management consoles.	Map applications, Host OSes and dependencies and work with business owners to determine which workloads to move.	Deploy infrastructure and install logs to collect system performance, begin testing and preparing for migration.	Migrate outside production first, then switch over with redundancies and rollback plans. Use synthetic tests to identify problem areas.	Typically limited to what can be shown from synthetic tests and log information showing resource utilization.
With Visibility from ExtraHop				
Objective auto-discovery and auto-classification of all systems communicating in the environment. This is not dependent on manual tagging.	Automatic mapping of application dependencies as well as usage and performance characteristics.	Agentless monitoring of new systems as they come online and ability to identify possible misconfigurations and tuning opportunities.	Real-time performance monitoring during the move so that IT Operations teams can detect and troubleshoot issues quickly.	Before-and-after performance baselines across the entire application delivery chain as well as ROI analysis.

Phase 1 – Discover

You do your best, run a tight ship, but any environment of suitable size will experience drift. What happens when one of your experts leaves and they are the only one who truly understands how the application works? Or when M&A drops an entire new data center in your lap? Sure, there are ways to collect information about your servers and their roles but often that is reliant upon keeping meticulous records, and being very structured in your processes. More likely than not, even if you do have a CMDB in place, there are a large percentage of assets that are not cataloged.

ExtraHop changes the game here with the ability to automatically discover and classify all devices on the network through passive observation. With ExtraHop, you simply begin collecting a feed off the network and it will auto-classify all systems and group them based on their activity. Want to target migrations for SQL servers? No need to bother the database team up front, just view the SQL databases that are seen and then share the report with them (you would be surprised how often “new” systems are discovered).

ExtraHop

Command

Dashboards

Alerts

Metrics

Records

Packets

Search...

tyson

EXT 7.1

Last 30 minutes

just now

Devices

Sources

Applications

Devices

Networks

Groups

Activity Groups

Device Groups

Trouble Groups

Any Column

Search

Any Device Type

Any Source Appliance

<input type="checkbox"/>	Name	MAC Address	VLAN	IP Address	Appliance	Discovery Time	Description	
<input type="checkbox"/>	NicolesiPhone2	C 000000000000	13	—	10.0.0.22	nextium-eda	2017-11-20 10:15:30	—
<input type="checkbox"/>	Apple 0E3C13	C 000000000000	13	—	—	nextium-eda	2017-11-20 10:14:00	—
<input type="checkbox"/>	SAMSUNG 2CE258	E 000000000000	58	—	—	nextium-eda	2017-11-20 09:16:30	—
<input type="checkbox"/>	extrahop.com	000000000000	3E	—	10.0.0.15	nextium-eda	2017-11-17 13:48:00	—
<input type="checkbox"/>	VMware 38693E	000000000000	3E	—	—	nextium-eda	2017-11-17 13:48:00	—
<input type="checkbox"/>	Dell 6C3856	500000000000	56	—	—	nextium-eda	2017-11-17 12:27:30	—

Figure 1. Automatically discover and classify all devices on the network.

Phase 2 – Assess

After the Discover Phase, you have a strong candidate list of systems to migrate. For instance, you know how many LDAP Servers are communicating that we can target for a move, but doesn't tell us how we can move these servers safely. That's where ExtraHop's activity maps feature comes in, providing you with a complete picture of everything touching the server in question.

Armed with a definitive view of your target servers as well as all the impacted systems takes the guess work out of decommissioning services at the end of the move. Compare this to the alternative of taking a database offline and migrating it and not realizing that your CRM is interfacing with that system on the backend effectively crippling the functionality.

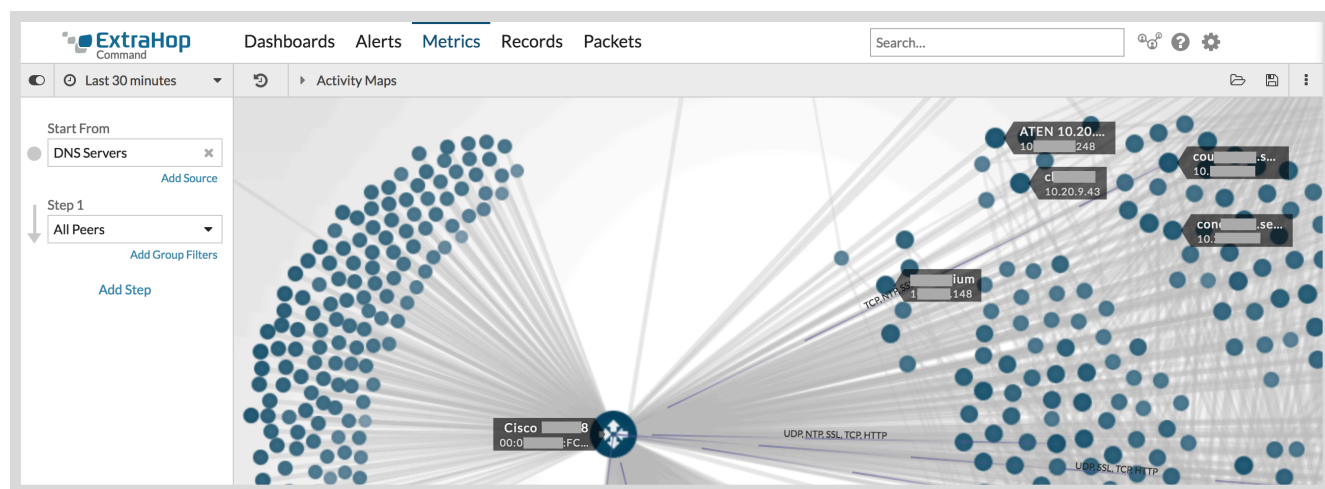


Figure 2. Map dependencies between systems.

With an outline of the targeted systems for the migration it's time to establish a baseline. Without a baseline, there is no definitive way to know if the migration was truly successful, as you will have to resort to a simple up/down confirmation, or worse yet will find out about an issue from a customer either internal or external. ExtraHop provides visibility across the entire application delivery chain so you can define what normal is using real-world usage patterns. That way, you'll know if response times for a database after the move are twice as long, for example.

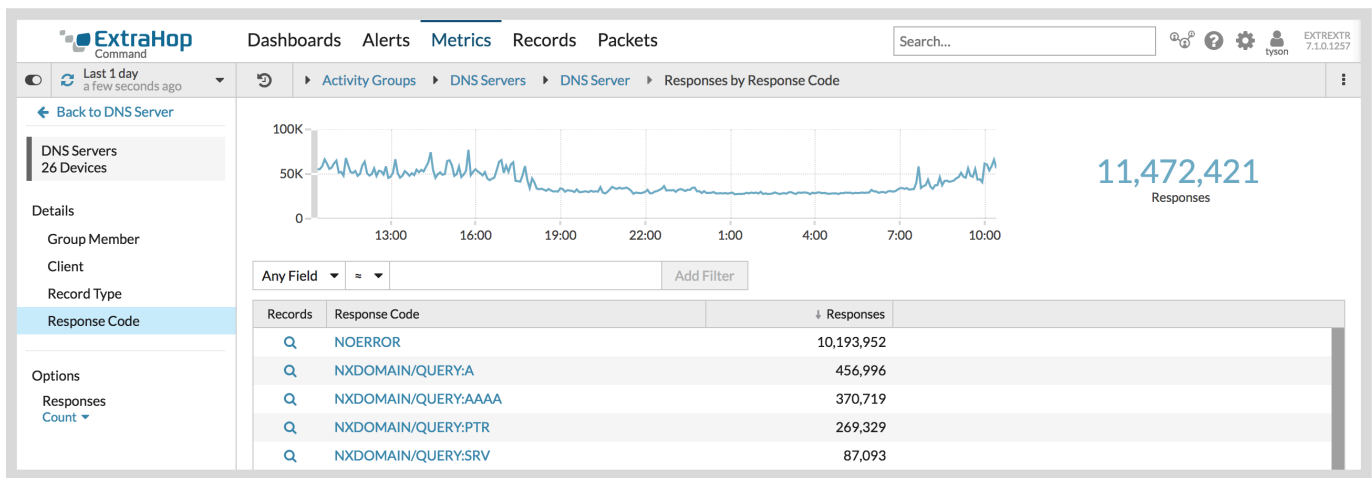


Figure 3. Understand the performance at each tier to compare before and after the move.

Phase 3 – Build

Now you must prepare for the move this means provisioning new systems, ensuring they are operating correctly, and meet the requirements of your workloads before the migration can be completed. Once the hardware is deployed and domain joined, it is automatically discovered and observed by ExtraHop. This is a much easier and scalable way to monitor the performance of a new environment than relying solely on logging, which requires careful configuration.

Armed with wire data from ExtraHop, you can easily see what is going on with the infrastructure, if it is stable to support the move. This cuts down on the amount of time that must be devoted to testing the new infrastructure ahead of the migration while also ensuring that you can move with confidence.

Phase 4 – Migrate

All that work just to get to here, the most critical part: Moving Day. You're going from a previously known-good to disassembling and reassembling a complex chain of interdependencies, hoping it performs exactly the same as it did before. You might even be going for extra credit and upgrading the capabilities or re-platforming entirely, in those cases you're in completely uncharted territory.

That's where you're going to need something to provide visibility across all application tiers. Having real-time visibility into the application delivery chain will dramatically simplify the process of understanding and fixing inevitable surprises. With real-time and objective data across tiers, every team is empowered and feels they are in control every step of the way, eliminating the fears that often lead siloed teams to resist change and continue supporting outdated and legacy infrastructure.

ExtraHop's visibility provides full L2-L7 visibility into the entire application stack, making it the ideal platform to assist with a complex migration effort.

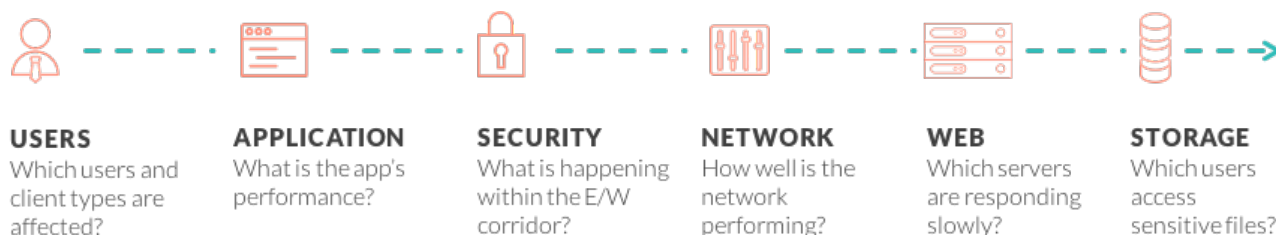


Figure 4. ExtraHop helps to answer difficult questions that come up during the move.

Phase 5 – Validate

The last thing you want to do is unplug the old service and roll production over to the new environment only to have it fail. Determining failure can be tricky though; a simple up/down test really isn't enough because slow performance is "the new downtime" in the eyes of users. You'll need to be more exact, and that means measuring actual real user experience before and after the move.

With ExtraHop, you are able to see what normal looks like by using trend analysis or by establishing user-definable thresholds about your expected performance. This takes the guesswork out of platform validation at each tier you will have the ability to measure performance and ensure that users will receive the experience they require before terminating the source services and completing the migration. Additionally, ExtraHop captures exact user experience metrics for every session and does not rely on sampling or synthetic tests, which can miss intermittent or unexpected user behavior.

Once it has been determined that the service is functioning properly, automatic discovery of all systems as well as application mapping can help you clean up the remaining services, surprisingly this is a step that often organizations neglect. If services are not properly decommissioned the cost savings of a consolidation effort are limited, and the risk of a security incident happening as a result of attackers targeting a system that is not being maintained goes up.

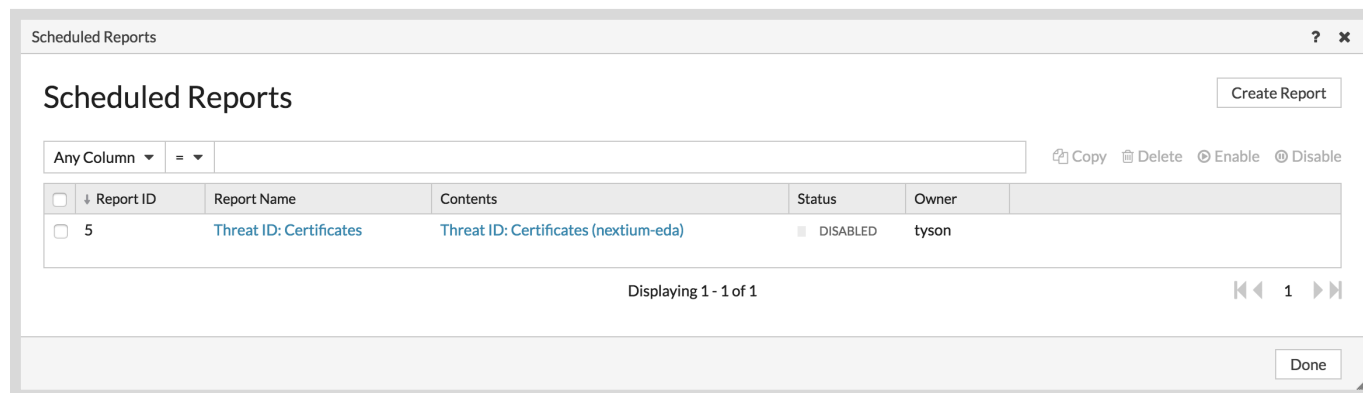


Figure 5. Keep stakeholders informed with reports on application performance throughout the project.

Conclusion

By using ExtraHop as part of a well thought-out migration strategy, you can eliminate many of the unknowns that make a data center migration and consolidation effort unnecessarily challenging. It is important to think holistically about your environment before, during, and after the migration effort, as this is the only way to effectively maximize your migration efforts and avoid waste. A complete view of your applications, databases, and workloads makes every stage of the project easier and can drastically reduce the costs and risks associated with the project.

To learn more about how ExtraHop can help your organization, visit extrahop.com/platform.

ABOUT EXTRAHOP

ExtraHop makes real-time data-driven IT operations possible. By harnessing the power of wire data in real time, network, application, security, and business teams make faster, more accurate decisions that optimize performance and minimize risk. Hundreds of organizations, including Fortune 500 companies such as Sony, Lockheed Martin, Microsoft, Adobe, and Google, start with ExtraHop to discover, observe, analyze, and intelligently act on all data in flight on-premises and in the cloud.

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