TEST REPORT

Tolly.

#223106

February 2023

Commissioned by

Men&Mice

Micetro

Overlay DDI Orchestration

EXECUTIVE SUMMARY

Dealing with disparate DNS, DHCP and IP address management systems is a fact of life for businesses of all sizes. Even for the rare environment that previously had a single on-prem DDI solution, the emergence of cloud services has essentially turned every environment into a mixed, multi-vendor environment. As that network complexity grows, it becomes increasingly important to manage it effectively.

Men&Mice commissioned Tolly to evaluate its Micetro DNS, DHCP, and IPAM (DDI) overlay orchestration solution. The evaluation encompassed the full range of the Micetro offering which includes: DNS, DHCP, IPAM, redundancy, automation, and reporting/troubleshooting.

Tests showed that Micetro's components were simple to install into an existing, multi-vendor DDI network that included both on-prem and cloud components. Micetro's orchestration was intuitive and simple to use with its overlay approach providing a single, consistent interface across all the underlying, multi-vendor services. See Table 1 for a summary. Testing was conducted in September 2022.

THE BOTTOM LINE

Micetro delivers:

1. Rapid time-to-value: Less than one hour from starting installation to working management of DDI elements
2. Overlay approach that is non-disruptive and DNS/DHCP system agnostic
3. Unified GUI to orchestrate all systems; eliminates learning curves for multiple underlying systems
4. Services additional to core, including logging, alerting, reporting, APIs, audit trails, health monitoring, and redundancy
5. Enhancements and extensions to native Microsoft and Linux management

Micetro Results Summary

Area	Findings
Installation	**Installation in under an hour. Non-disruptive to existing DDI components.**
Flexibility	**Multi-service interoperability. Non-Disruptive Operation. Easy resource migration from on-prem to cloud.**
Redundancy	**Multi-Component Redundancy: Micetro server, back-end database, xDNS redundancy zones**
Automation	**Extensive automation support built via abstraction layer that allows portability to all managed services. This also results in a reduced learning curve as the same automation UI is used for all managed services.**
Troubleshooting	**Centralized logs to aid troubleshooting of underlying services. Provides audit logs for services, like AWS, that do not log IP address changes.**
TCO	**Ease-of-use reduces/eliminates training time/costs. No requirement for cloud appliances reduces OpEx.**

Source: Tolly, September 2022

Table 1

Test Overview

Tolly structured the evaluation to follow a workflow natural for an actual, production deployment of Micetro into an existing hybrid on-prem/cloud environment. That deployment was notable for how simply and rapidly it could be accomplished.

Here is why. Micetro is an "overlay" solution. That means that Micetro works in conjunction with whatever DNS and DHCP infrastructure is already in place. Micetro provides a unified interface that enables users to view and manage disparate components. Importantly, it does so without requiring anything more than appropriate credentials into each IP management component. Nothing has to be replaced by a Men&Mice component and nothing has to be removed. Thus, implementing an overlay solution like Micetro in a production environment is quite safe as the existing environment is essentially undisturbed.

For the test, Tolly evaluated Micetro in areas important to businesses of all sizes. The test network consisted of an existing network that where IP address management services were provided by on-prem Microsoft IP address management components and BIND DNS systems along with ISC Kea DHCP. Amazon Web Services (AWS) was used as a representative cloud system for the purposes of this evaluation[1].

See Table 2, on page 5, for a detailed list of Micetro features.

Test Results

Installation

The test used Micetro version 10.3. Testers deployed this as a "fresh install" and, in a matter of minutes, had installed the core Micetro system on a Windows 2021 Server[2]. Once the components are installed, the user interface is via web browser.

Testers then added license keys for the various IPAM modules including DNS, IPAM, Advanced Reporting, and Workflow.

For each component to be managed, Men&Mice implements an agent that is installed locally on the DNS/DHCP resource and that handles the communication between the DNS/DHCP system and the main Micetro system.

For BIND DNS, for example, this consisted of establishing an SSH connection with the server running BIND, copying a package to that server and running an install. The entire process was completed in less than a minute.

Once the agent is installed on any relevant IP component, that component can be added to the Micetro management system with a few clicks. After the agent is installed, the component is managed by Micetro.

Flexibility

Businesses large and small need to be nimble when it comes to network infrastructure and IP address management. Whether it is rapid expansion of a small business via cloud services or multiple acquisitions by a larger business of on-prem networks, IT needs to be able to manage the resulting IP addressing infrastructure.

This evaluation reviewed several aspects of flexibility.

Multi-service Operation

For this part of the evaluation, testers linked Micetro to multiple different IPAM components - both on-prem and cloud. For on-prem, Microsoft and BIND DNS were used. For the cloud, AWS and Microsoft Azure were used. For on-prem, as noted previously, an agent was installed. For cloud services, appropriate service credentials were provided to allow the interaction between Micetro and the cloud service

As each service was onboarded, the service details were available immediately for both viewing and modification within the Micetro environment. See Figure 1, on the next page, for an example of unified management of disparate services.

Importantly, Micetro interacts in a bi-directional fashion with all of the IP components it manages. Thus, if a customer still desires to make some changes locally in, say, a BIND DNS system

Men&Mice

Micetro

Overlay DDI Orchestration

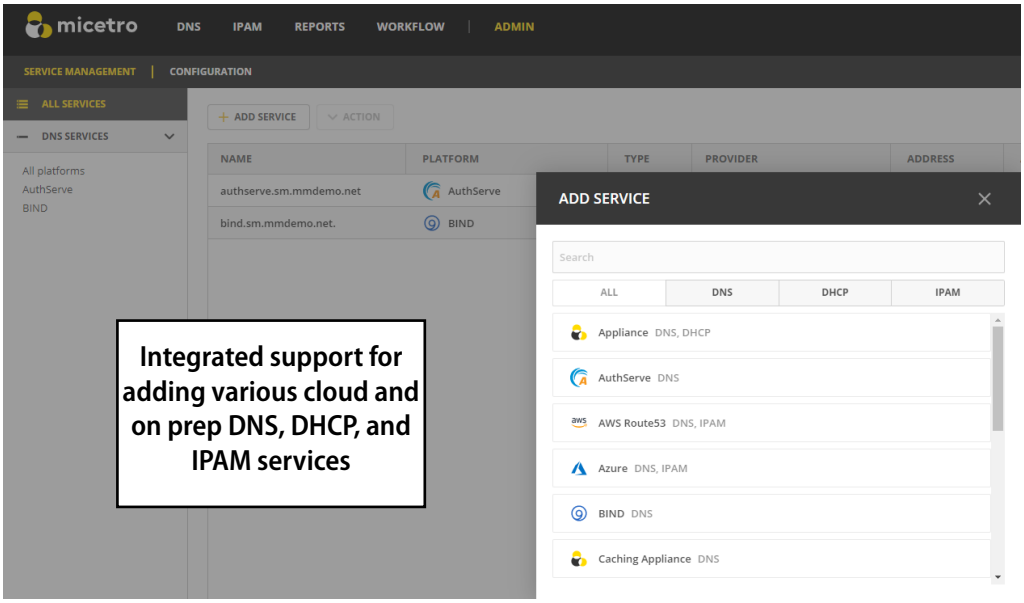
Tolly. Certified

Tested September 2022

[1] Men&Mice notes that Google Cloud Platform is a roadmap item.

[2] Men&Mice notes that Linux is also supported as a platform for the core Micetro components.

Micetro GUI Example: Multi-service Operation



Source: Men&Mice, September 2022

Figure 1

managed by Micetro, all such changes are reflected in the Micetro GUI.

Throughout all of Micetro's functions, a single, unified GUI is used to manage IPAM functions no matter where the given component is implemented. Thus, the network administrator does not have to do anything differently or learn anything new when adding, say, a DNS server in a BIND, Microsoft, or cloud environment.

Microsoft Integration

Micetro provides extensive integration with Microsoft traditional and cloud services.

Microsoft Active Directory (AD) and Azure AD integration
Micetro supports Single Sign-On (SSO) and Multi-Factor Authentication (MFA) that ease operational challenges related to access control for both on premises and cloud systems.

Agent-Free Operations
Micetro does not require agents on every Microsoft DNS/DHCP server. Only one agent is required in the entire Microsoft "forest" to serve as a proxy that will handle all communications to remote DNS/DHCP servers. This frees the customer from having to install and maintain 3rd-party agents on multiple machines.

Proactive triggers and alerting
Customers can enhance their Microsoft environment by adding triggers and alerting that provide for external scripts to be run when: 1) object properties are modified, 2) when zones are changed, and 3) when the number of free IP addresses ins a subnet goes below a specified threshold.

Granular Access Control
Micetro granular access control can enhance your Microsoft deployment by assigning permissions to granular objects such as DHCP scopes and DNS zones, and remove the security issue of giving access to your Microsoft domain controllers unnecessarily.

Microsoft AD Integrated DNS Zones
AD Integrated zones are built-in to the Micetro UI making it easier to access and modify information correctly. Micetro uses a zone transfer to get the latest records and then uses the Microsoft API get detailed information for individual records.

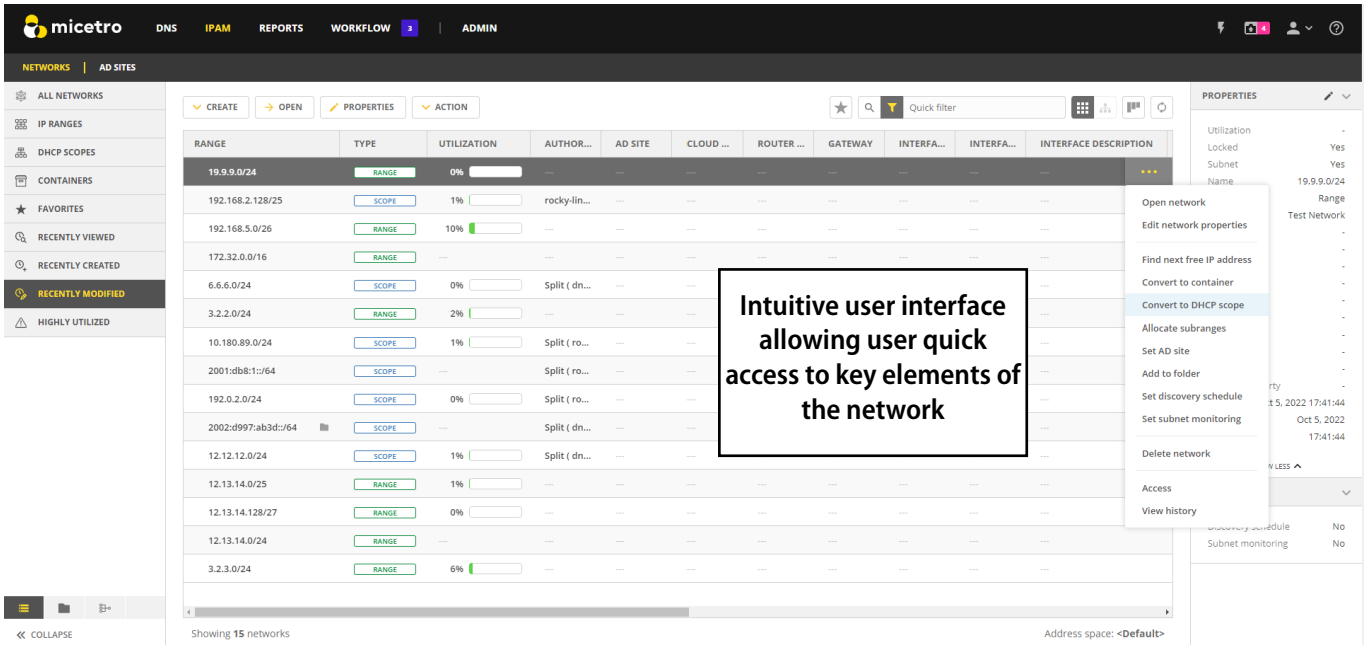
Active Directory Sites and Subnets
Going beyond AD Users and Groups you can integrate with your Global Catalog Server to add Microsoft AD Forests to your Micetro UI for better visibility and planning.

Microsoft DHCPv6
Use the same dynamic IP allocation methods for IPv6 as used for IPv4. Micetro provides support for IPv6 for Microsoft and Kea DHCP.

Non-disruptive Operation

Micetro's overlay approach is inherently non-disruptive. Because Micetro leverages the existing DDI environment, clients continue to communicate with the underlying resources and not to Micetro. Put another way, clients retrieve addresses using existing DHCP servers and resolve

Micetro User Interface Example: Overview of Networks



Source: Men&Mice, September 2022

Figure 2

DNS names via existing DNS servers. Network clients never communicate directly with Micetro. Tolly confirmed non-disruptive operation. The non-disruptive nature facilitates migration from other DDI solutions.

Easy Migration: On-prem to Cloud

Many businesses are migrating compute resources from on-prem to cloud services. Because Micetro communicates with both the on-prem and cloud components, it can easily handle this migration.

The Tolly test verified taking DNS zones from on-prem devices and migrating them to the AWS environment.

Redundancy

Men&Mice provides the type of reliability and redundancy that large corporations demand and that smaller organizations can use and leverage.

The system is redundant at multiple levels.

Micetro can leverage the high-available capabilities built in to both Microsoft SQL and PostgreSQL to provide redundancy at the database level[3].

At the server level, Micetro allows customers to define a server cluster consisting of an active management server and a standby management server. Tolly illustrated this capability by taking the active server offline and verifying that the standby server became active and continued to allow management of all resources.

Finally, xDNS zone redundancy groups represent Micetro's method of keeping DNS zones in sync and provides an additional level of redundancy. According to Micetro: "If a DNS record is added, modified or deleted in a zone that is a member of a zone redundancy group, then the changes will be replicated to other zones in the group." Tolly verified the replication of changes to other zones in the redundancy group.

xDNS gives users the confidence that their domains will stay up, even if their DNS provider goes down, by ensuring that

[3] Micetro also supports SQLite but that database does not provide redundancy capabilities.

they're not dependent on a single DNS provider.

Automation

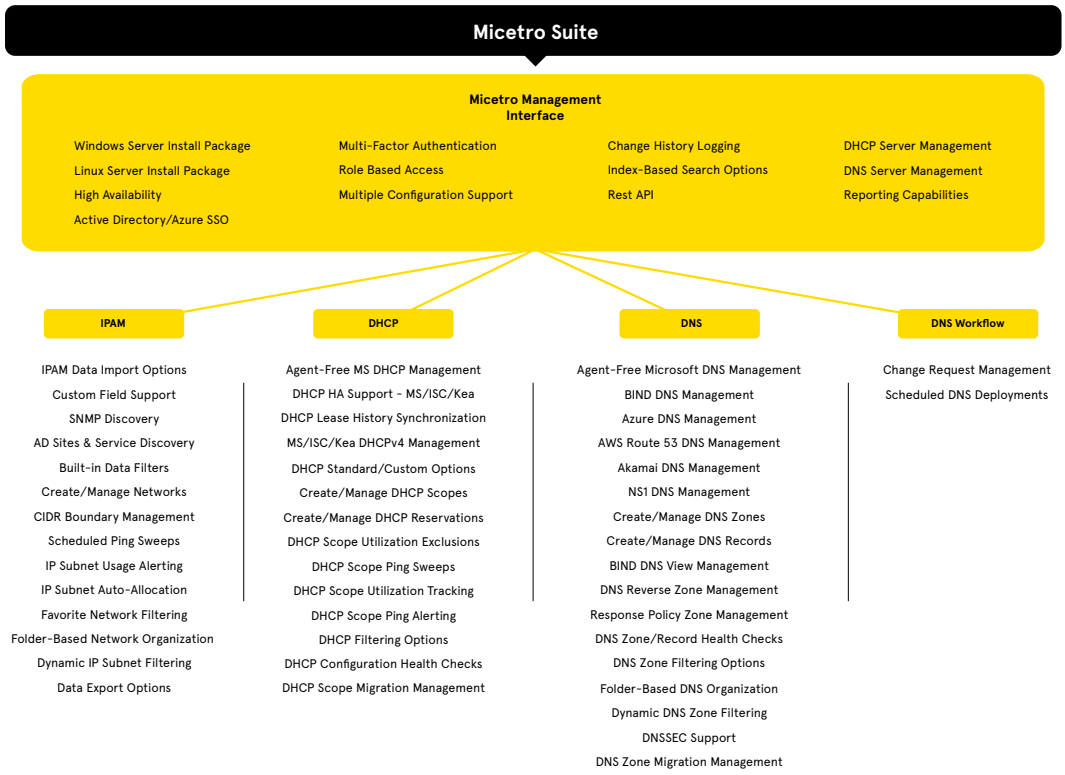
Many IP address management tasks are repetitive and can benefit from automation.

Micetro has SOAP and REST APIs built-in, and provides simple automation integrations with up-to-date plug-ins for tools like Ansible and Terraform.

Micetro implements an abstraction layer that separates out the automation function from the underlying API. This has manifold benefits.

First and foremost, this minimizes the customer

Micetro Feature Matrix



Note: Not all features were evaluated by Tolly.
Source: Men&Mice, September 2022

Table 2

Customer Testimonial

intility
The Enterprise Cloud

"Combining Micetro's custom property feature and the extensive library of APIs has allowed us to create our own network automation portal. The portal is employed to administrate and document the network for over 600 customers. Tasks such as locating a customer's network by traversing a routing table are no longer necessary. We automatically feed this data to Micetro, allowing our network technicians to search for a given customer code, location code, or application name to find their desired network."

Ali Arfan, Network Services Engineer, Intility AS.
Confirmed by Tolly.

Customer Testimonial

"For me it's about IP allocation where we can see the whole IP space, knowing which IP is mapped to which name. [With Micetro] it's much easier to see what's free and where we want to put things, rather than probing the IPs one by one through DNS. For us that's a key feature that's really helpful."

Charlie Alvarez, IAM Service Owner & Team Manager, NI (National Instruments).
Confirmed by Tolly.

learning curve as the automation is not API-dependent.

Equally important is the fact that the automation API is service-independent, thus making it portable from service-to-service. Thus, an automation implementation for, say, BIND DNS could be used on AWS Route53 DNS.

Tolly explored the interactive capabilities of the API support where various objects can be retrieved dynamically via a prompted "model" approach.

Additionally, Micetro supports Microsoft PowerShell to provide additional automation capabilities.

Troubleshooting

Troubleshooting multiple services is inherently challenging as, at a minimum, this means the network administrator needs to log in to each environment separately and probe whatever error logs and audit trails the service might have available.

For at least some cloud services, even that approach is being overly optimistic. AWS, for one, does not currently provide any audit trail for IP address management updates.

Micetro simplifies troubleshooting dramatically. For starters, Micetro provides a central point where troubleshooting can take place. For services like AWS, that don't provide an audit log, Micetro fills that gap by providing its own audit log for any AWS updates made via Micetro.

Total Cost of Ownership

While not a formal part of the study, Tolly noted several TCO benefits during the course of the evaluation.

Micetro is intuitive. The GUI is simple and straightforward and Tolly believes that most network administrators would be able to use the solution without requiring any formal training.

The nature of the overlay solution is that its abstraction layer essentially makes the underlying products invisible. Thus, to make DNS changes, for example, the network administrator does not need to know the separate GUI and/or command line interfaces for BIND DNS, Microsoft, or AWS Route 53. Rather, the administrator only needs to know how to make a DNS update in Micetro and that person can make that change, via Micetro, in any underlying environment.

While some DDI solutions require network appliances in the cloud server environments, Men&Mice notes that this is not a requirement for Micetro. Thus, Micetro eliminates this potential operational expense.

Micetro can save customers anywhere from US$2,000 to $48,000 annually (depending on deployment size) in cloud resource costs alone when compared to DDI vendors that require deployment of cloud-based appliances. This data was gathered using public calculators available on AWS.

About Tolly

The Tolly Group companies have been delivering world-class IT services for more than 30 years. Tolly is a leading global provider of third-party validation services for vendors of IT products, components and services.

You can reach the company by E-mail at sales@tolly.com, or by telephone at +1 561.391.5610.

Visit Tolly on the Internet at:
http://www.tolly.com

Terms of Usage

nb-1-wt-2023-02-08—VerK