

# Security in a Multi-cloud World

Oct 6, 2021





# Webinar Series

- Session #1: Advantages of Moving the Cloud (Aug 25, 2021) – Recording available
- Session #2: Security In a Multi-Cloud World (Oct 6, 2021)
- Session #3: Achieving Operational Excellence in the Cloud (Nov 17, 2021)

[https://engage.3m.com/Managed\\_Cloud\\_Services](https://engage.3m.com/Managed_Cloud_Services)

# Presenter Introductions



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# Agenda

- Well Architected Framework
- Considerations when moving the cloud
- Architecture and security considerations
- Cloud-to-Cloud

# Considerations in moving to 360E in the cloud

## Security:

1. Can you encrypt your HL7 data on-premises?
2. Does your document management system have an HL7 document interface?
3. Are you using reference pointers for document retrieval?
4. Do you have good change control processes for Proxy Servers/Firewalls?
5. Is all the application data encrypted?
6. Can you support single sign-on with an Identity Provider or support ADFS authentication?

## Location of your EMR, interface engine and user remote desktops:

1. Is your EMR on-premises, hosted by your EMR vendor, or hosted by a third party?
2. Is your interface engine on-premises, hosted by your Interface vendor, or hosted by a third party?
3. Are your user remote desktops located on-premises, or hosted by a third party?
4. Does your EMR offer a web version?

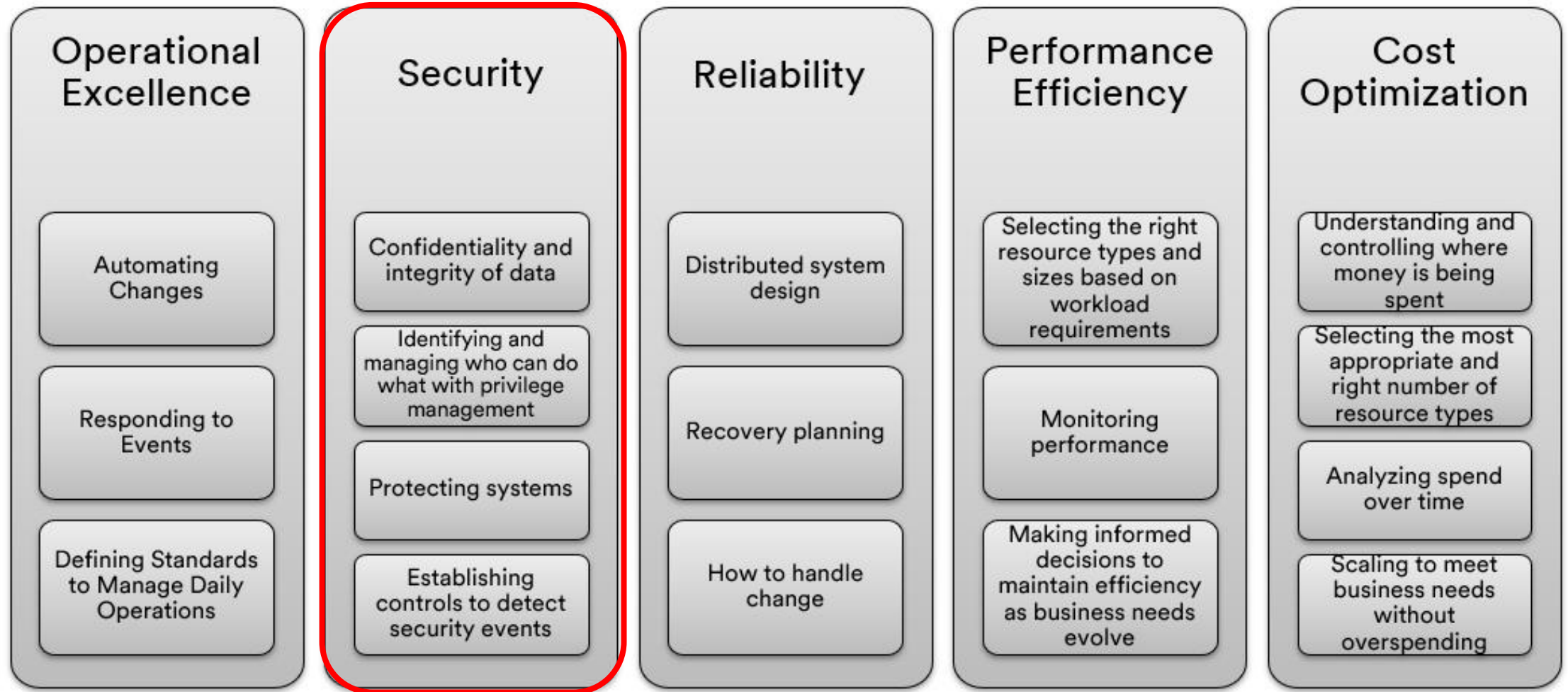
## Vendor connection requirements:

1. Can you deploy vendor-owned VPN appliances in your DMZ?
2. Do you have enough bandwidth available on your existing circuits?

## User Experience:

1. What is your user experience with Citrix/VDI today? Will this impact the user experience with cloud hosted solutions?
2. What needs to be installed on the user's remote desktop?

# AWS Well Architected Framework



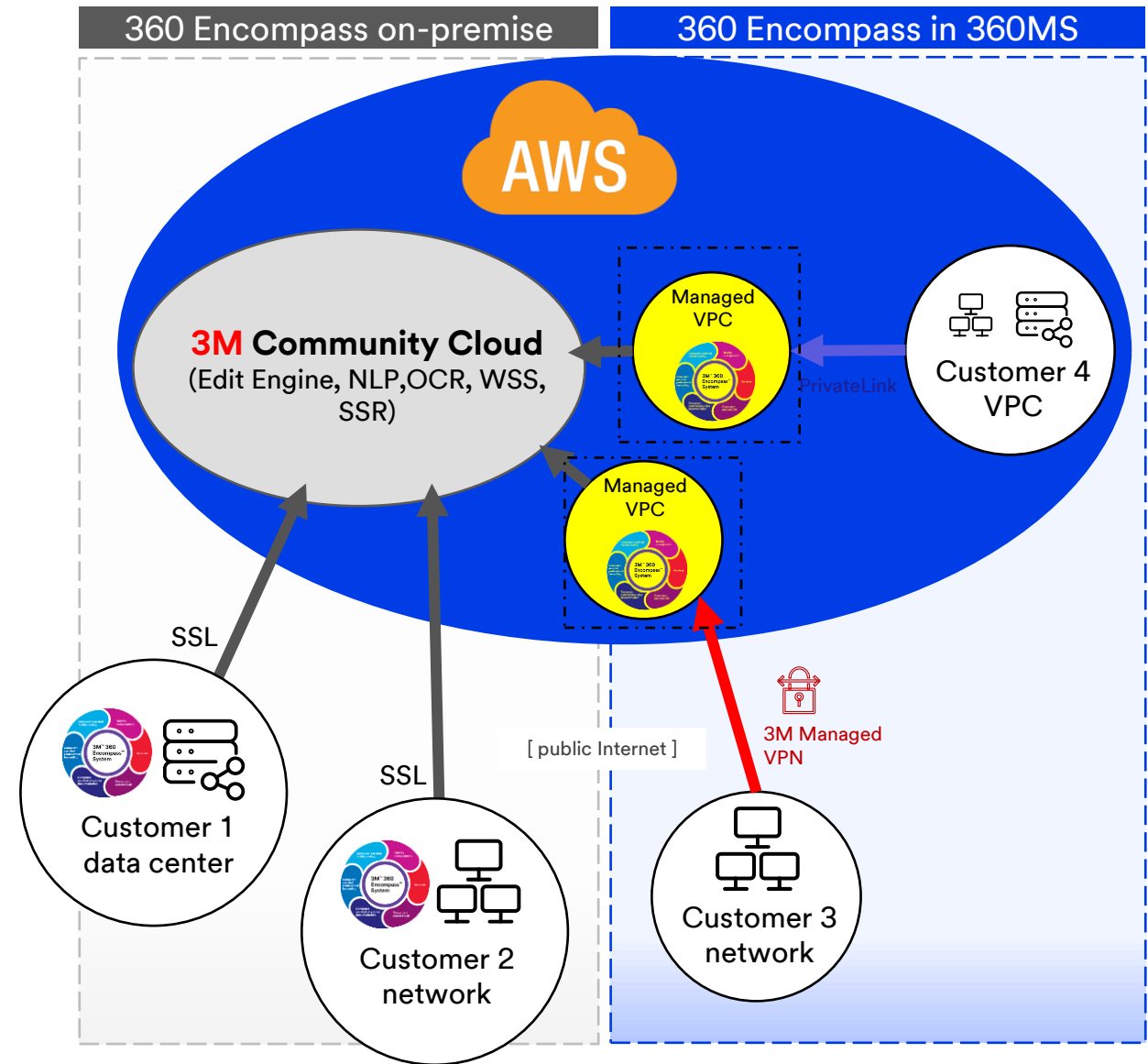
# 3M Cloud Platform

## 360 Encompass in the cloud

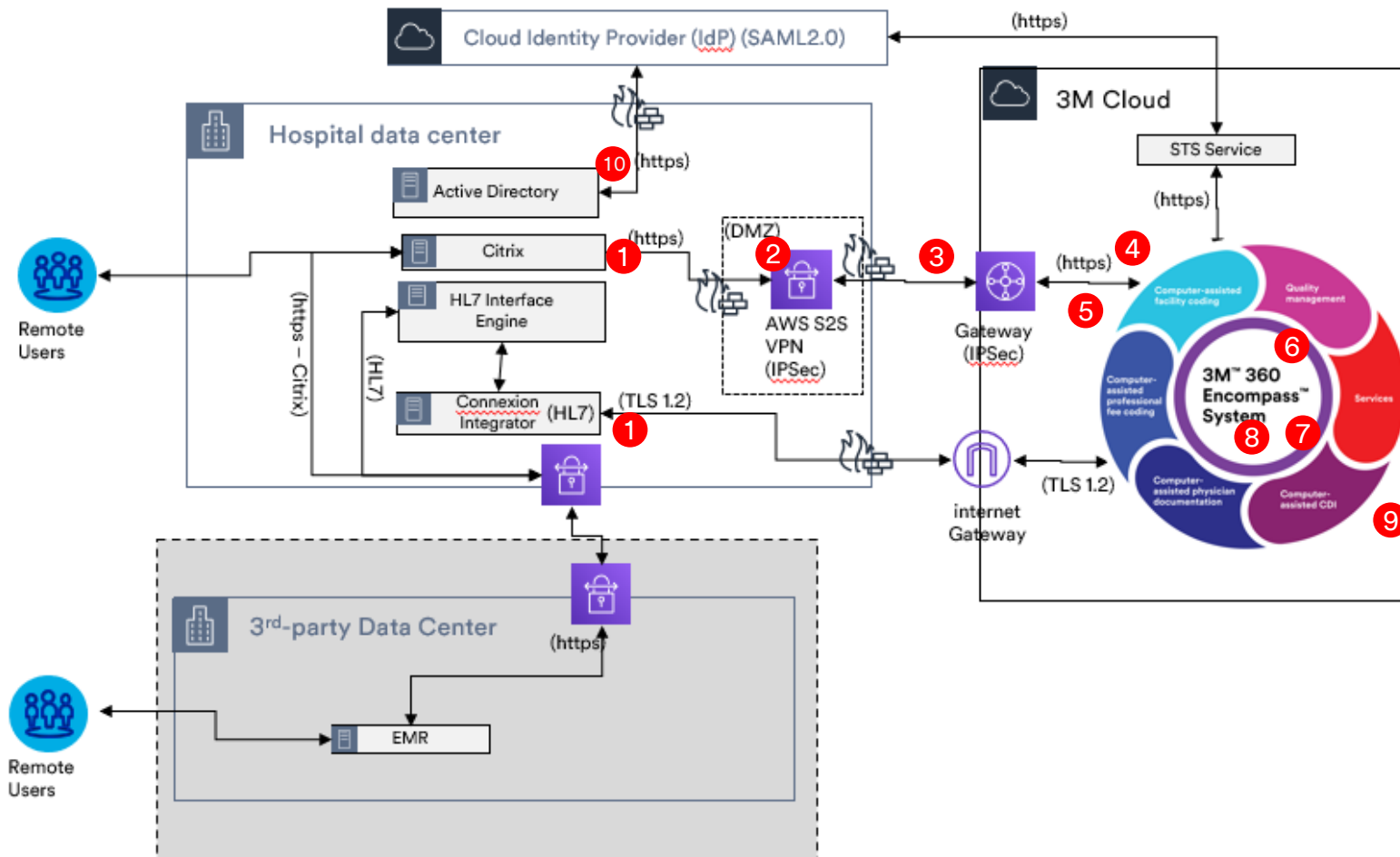
- Each customer's 360 Encompass servers (app, web, etc.) are in a separate Virtual Private Cloud (VPC) within a separate AWS account.
- On-premises (or in-datacenter) client systems for admission, EHR, etc. interface data to the client's VPC.
- BYOV(DI): The client controls the presentation layer, i.e. physical or Virtual Desktop Infrastructure (VDI) used by end users of 360E.

## 360MS Operations

- Client VPC is managed by 3M.
- All OS and 360E upgrades managed by 3M.
- Security Scanning of Cloud Components managed by 3M.
- S2S VPN is managed by 3M.



# 360 Encompass in the Cloud - Security

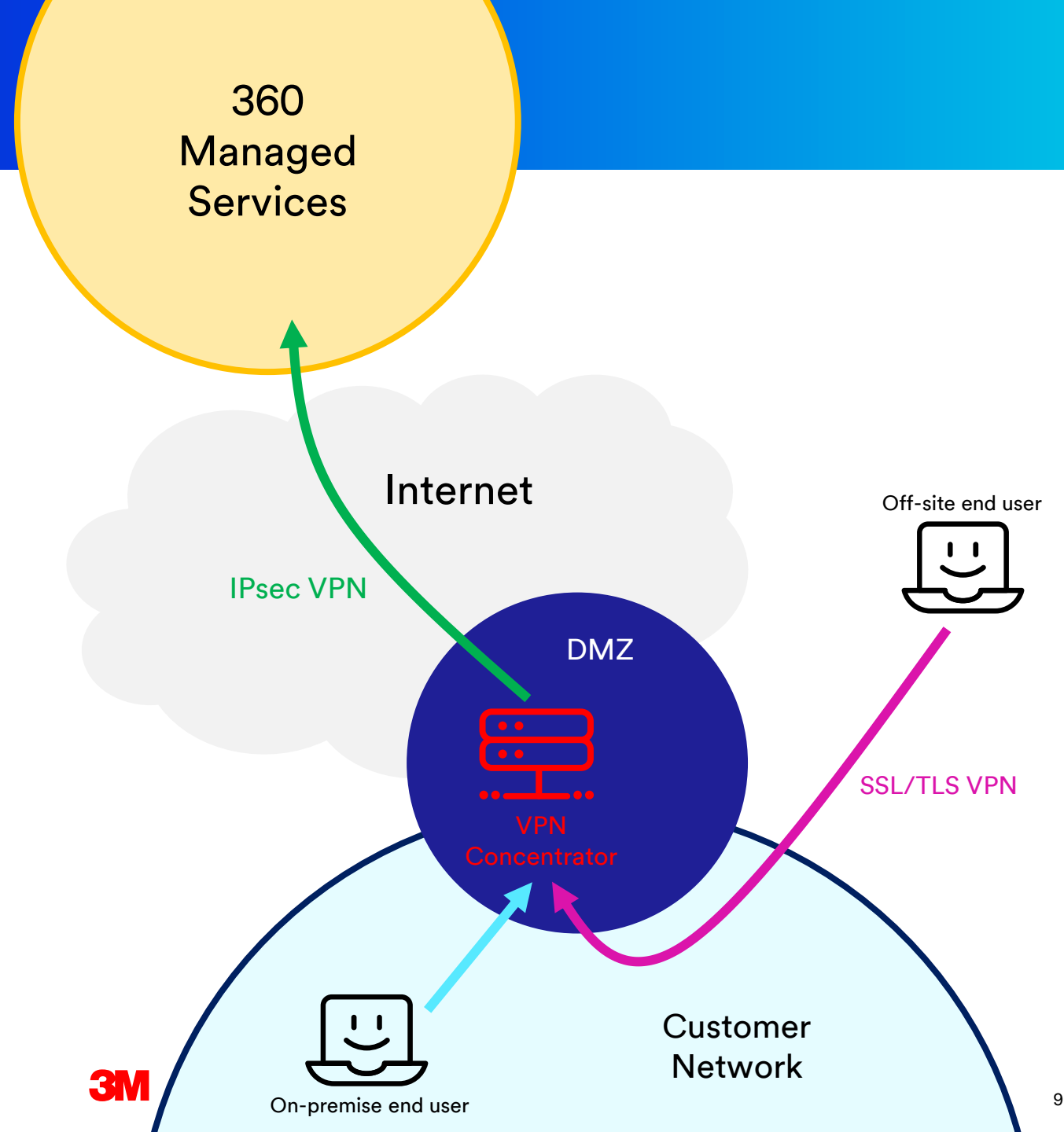


- 1 All 3M application data uses https/TLS 1.2
- 2 3M VPN appliance resides inside customer security framework (DMZ)
- 3 IPSec VPN Tunnel
- 4 AWS ACL/NACL
- 5 Application and Network Load Balancers
- 6 Data Encrypted at rest
- 7 Anti-virus, anti-malware, Threat Detection, and Data Loss Prevention (DLP) Scanning
- 8 AWS backbone to communicate with 3M Community Cloud (no Public Internet)
- 9 Customer VPC separated
- 10 Customer manages user security accounts



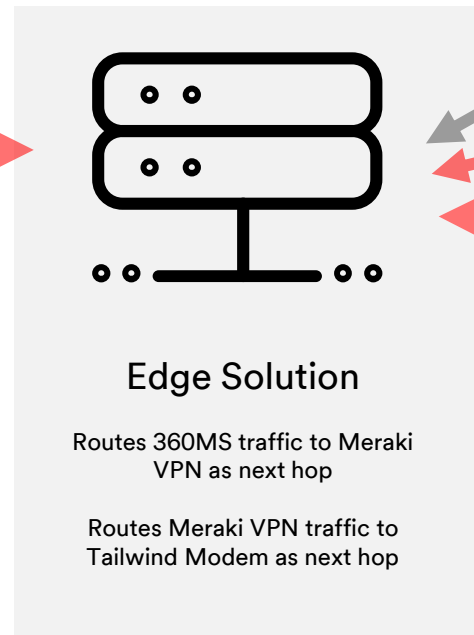
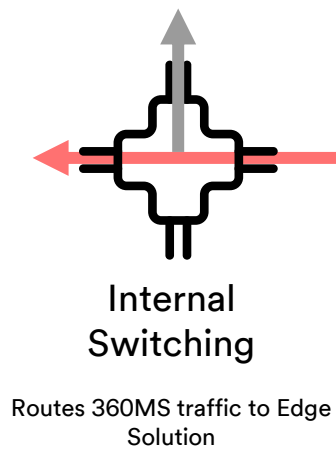
# VPN Overview - concepts

- VPN Concentrator:
  - A device that provides secure creation of VPN connections and delivery of messages between VPN nodes.
  - HA pair configuration
  - Dashboard for Remote monitoring/automated response
- Implemented in the DMZ (perimeter network, screened subnet)
- Optional dedicated circuit (modem)



# With a dedicated circuit

Internal network



Internet modem



Internet



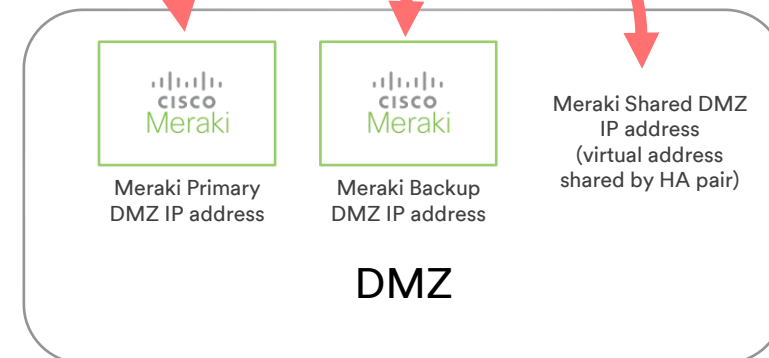
modem

Static routes to VPN endpoints in AWS



AWS  
(static IP)

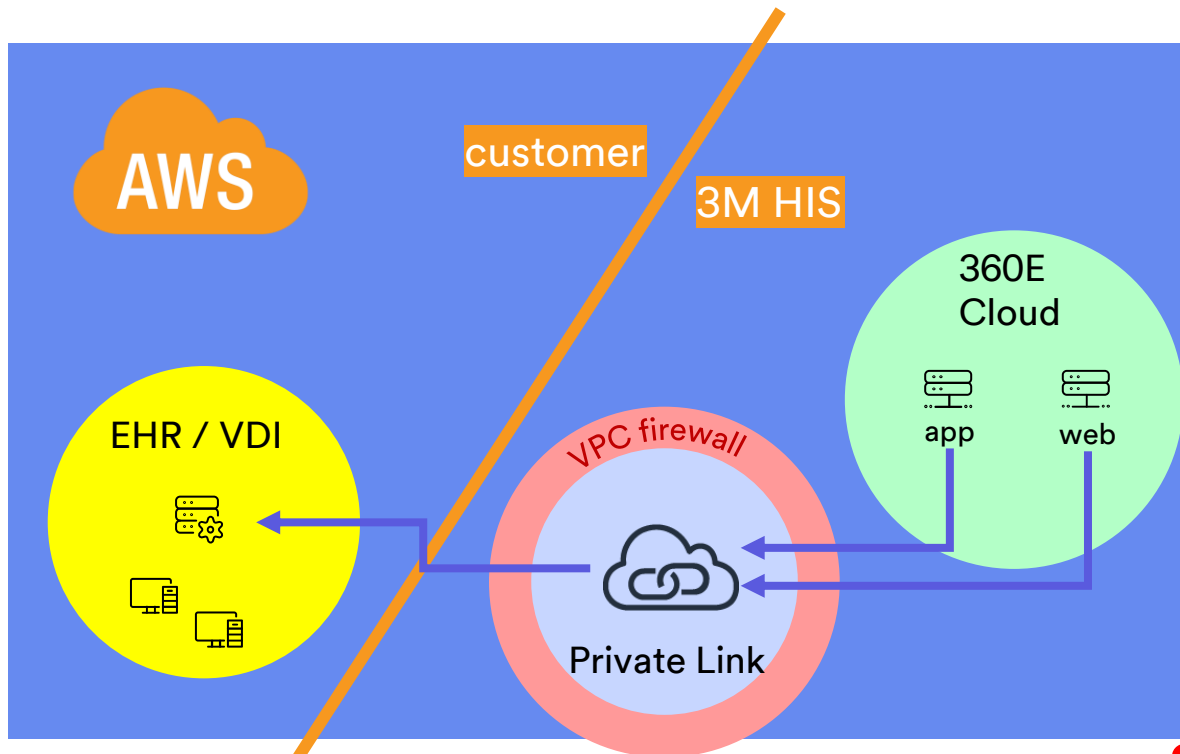
NAT



# Cloud-to-cloud

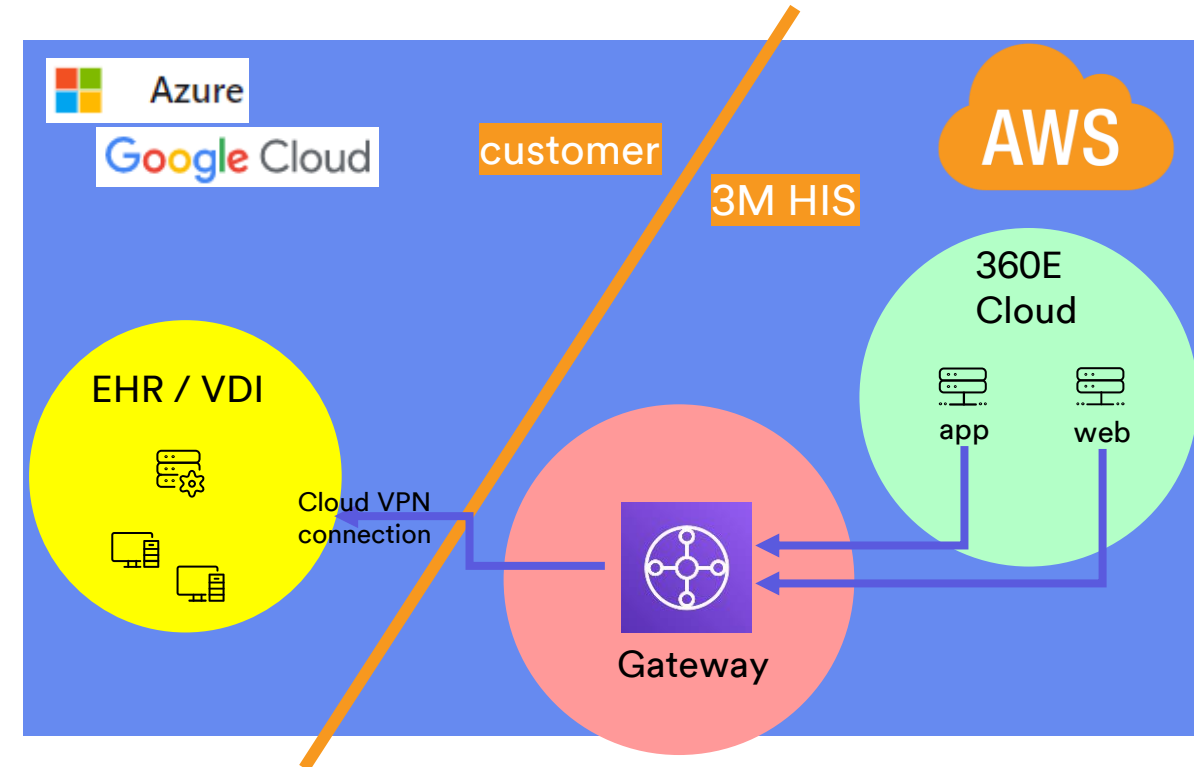
## AWS Cloud-to-AWS cloud design

- If customer has VDI hosted in AWS then use an AWS private link to connect Customer and 3M AWS accounts.



## AWS Cloud to third-party cloud design

- If customer has VDI hosted in 3<sup>rd</sup> party cloud, then use a cloud-to-cloud VPN configuration.



# Reminder

## Microsoft End of Life

SQL Server 2012 = July 12, 2022

Server 2021 r2 = Oct 10, 2023 (was previously Jan, 2023)

~15% - 20% of 3M customers are currently using Server 2012 r2/SQL 2012

Note: 3M follows Microsoft Lifecycle and cannot support 3M solutions on Microsoft versions beyond End of Life.



The background is a complex, abstract pattern of overlapping triangles and polygons in various shades of blue, ranging from a deep navy to a bright, vibrant blue. The shapes are sharp and angular, creating a dynamic, crystalline effect.

**Thank you.**