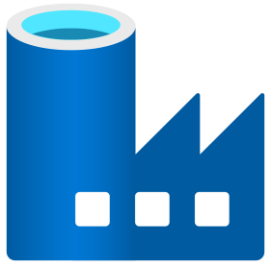
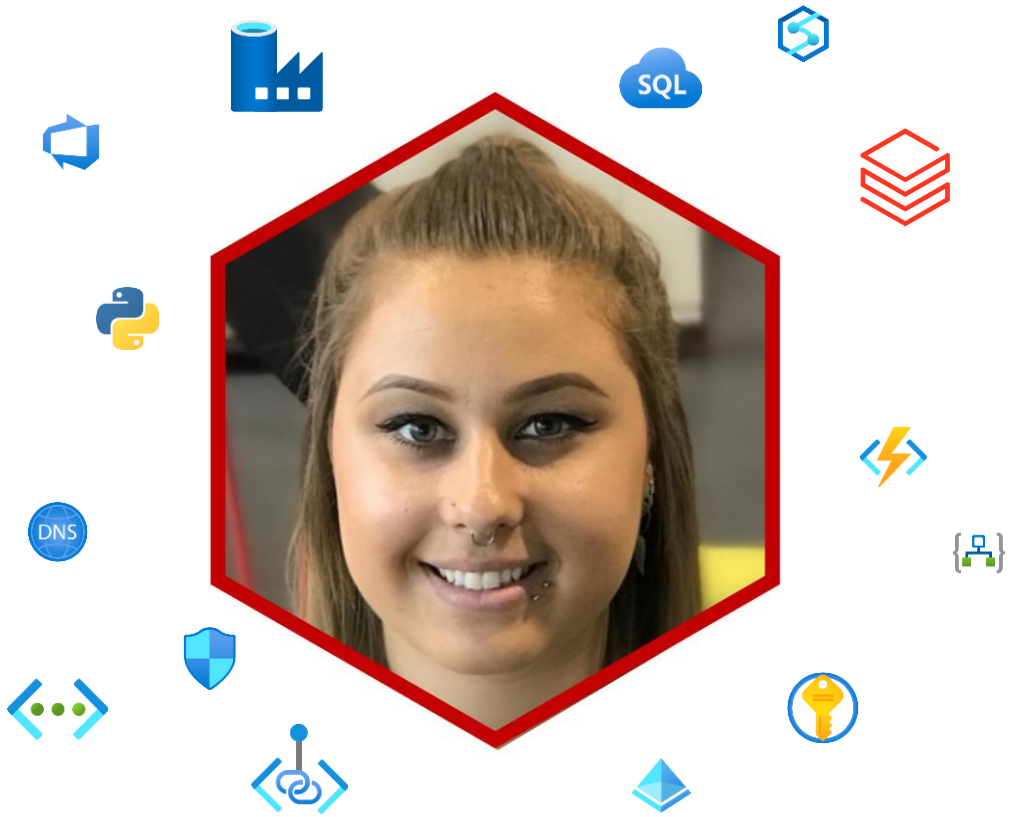
Connecting to your data securely with Synapse and Data Factory Integration Runtimes



Introduction

Introduction

Grace O'Halloran (grace-o-halloran)
@graceaohalloran
grace@advancinganalytics.co.uk
www.thinkingacloud.co.uk



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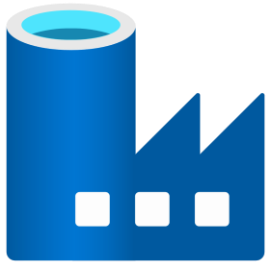


What to expect

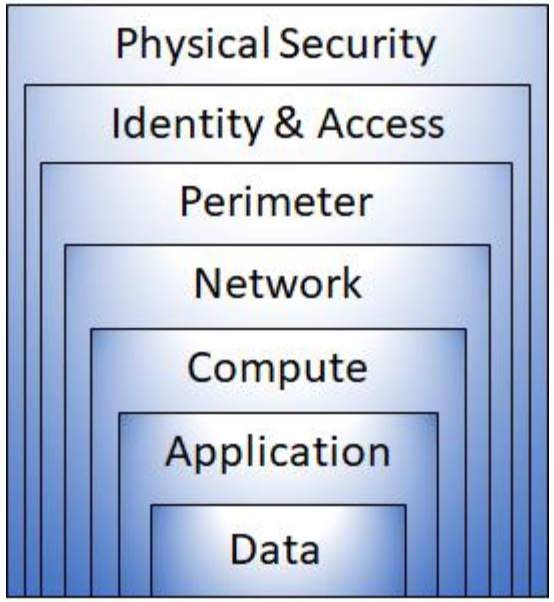
What to expect

1. Introduction to Network Security
2. Introduction to types of Integration Runtimes
3. Common Secure Architecture Patterns

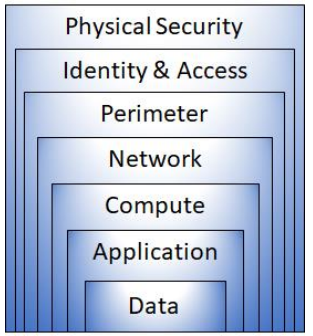
Introduction to Network Security

Network Security

Defence in Depth



Network Security



Responsibility	On-prem	IaaS	PaaS	SaaS
Data governance & rights management	Customer	Customer	Customer	Customer
Client endpoints	Customer	Customer	Customer	Customer
Account & access management	Customer	Customer	Customer	Customer
Identity & directory infrastructure	Customer	Customer	Shared	Shared
Application	Customer	Customer	Shared	Microsoft
Network controls	Customer	Customer	Shared	Microsoft
Operating system	Customer	Customer	Microsoft	Microsoft
Physical hosts	Customer	Microsoft	Microsoft	Microsoft
Physical network	Customer	Microsoft	Microsoft	Microsoft
Physical datacenter	Customer	Microsoft	Microsoft	Microsoft

Microsoft Customer

Network Security in Data Platforms

Challenges

Accessing resources on the internet / public services

Secure development access

Secure data integration

Network Security in Data Platforms

Moving data inside a private network

Moving data securely between private networks

Unable to use public endpoints

Moving data between on-prem and the cloud

Integration Runtimes

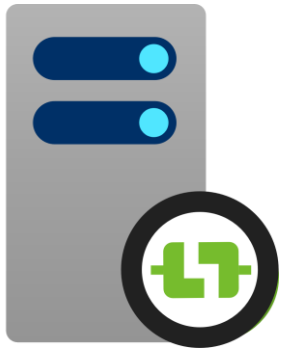
Integration Runtimes

What is an Integration Runtime?

"Compute infrastructure used by ADF and Synapse for data integration capabilities"

Integration Runtimes

Azure IR



SHIR

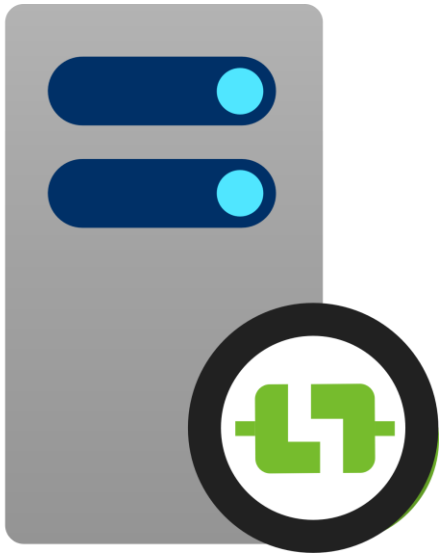
Azure-SSIS

Azure Integration Runtime

- Fully managed, serverless compute
- Elastic scaling
- Option for Managed Vnet
    - Managed Private Endpoints

Self-Hosted Integration Runtime

- Installed on your own machine
  - On-prem or VM
- High availability options
- Full control over the network

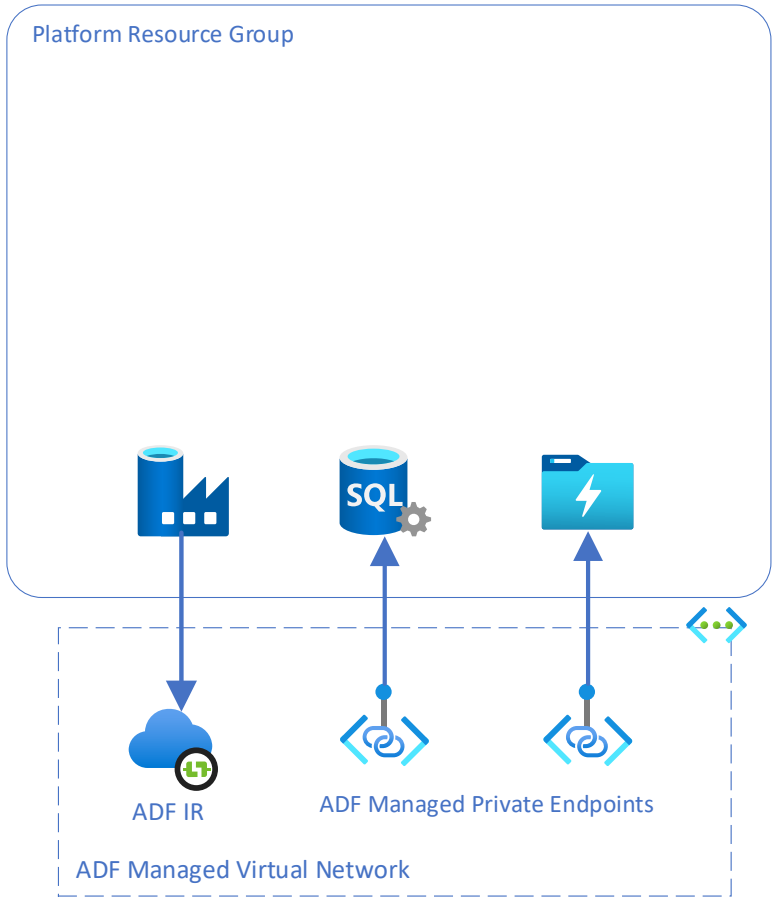


Azure-SSIS

- Executing SSIS packages

Architecture Patterns

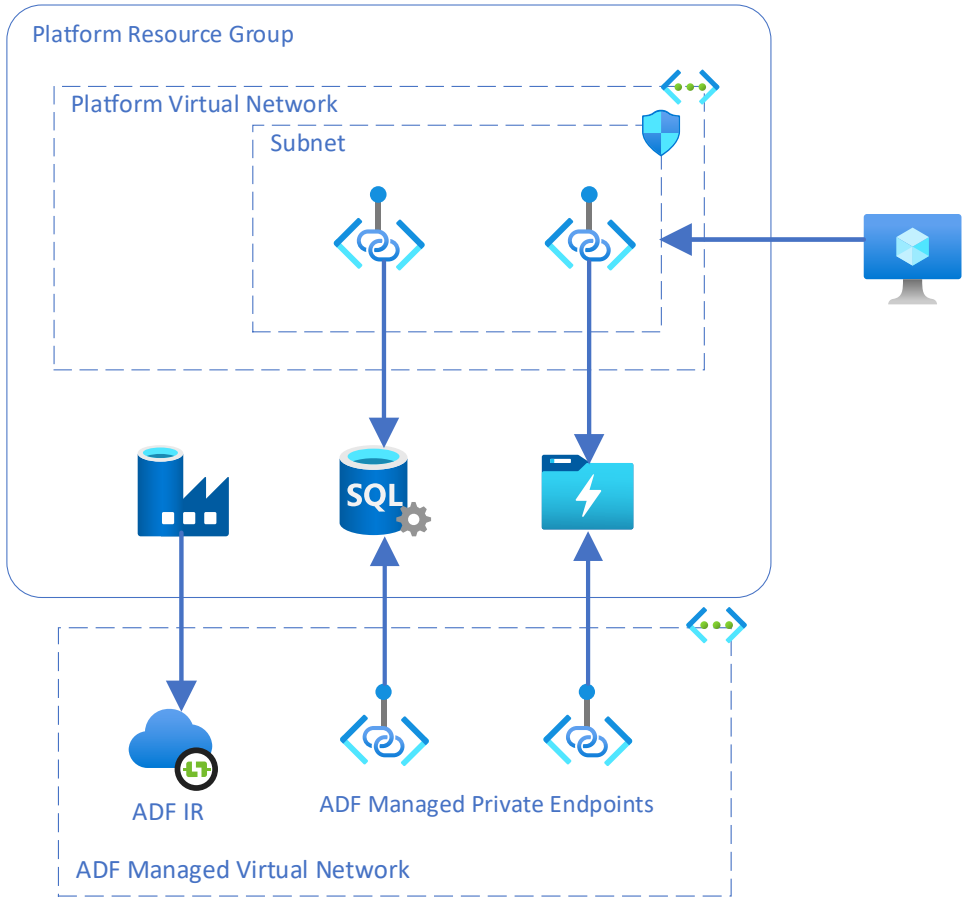
Azure IR with Managed VNet



Pros

- ✓ Not responsible for configuring network connectivity for ADF/Synapse to access resources
- ✓ Don't have to maintain firewall rules
- ✓ UI for managed private endpoints
- ✓ Don't have to configure and maintain runtime server
  - ✓ Auto-scaling

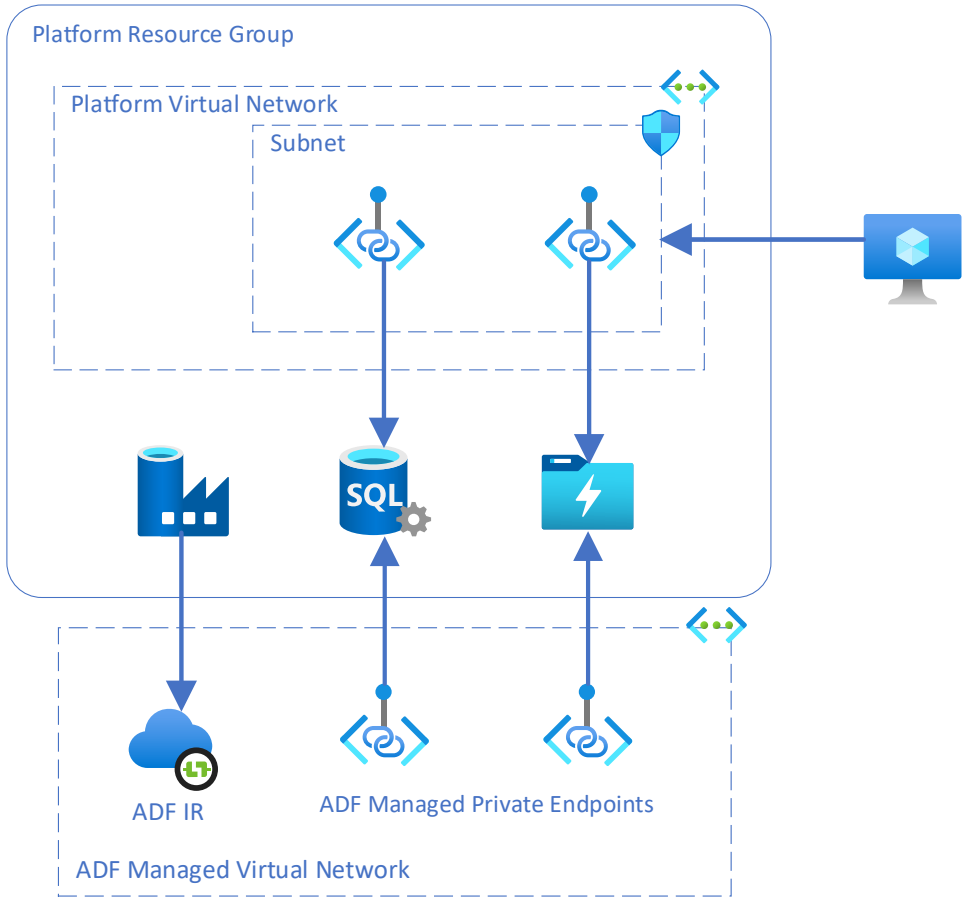
Azure IR with Managed VNet



Cons

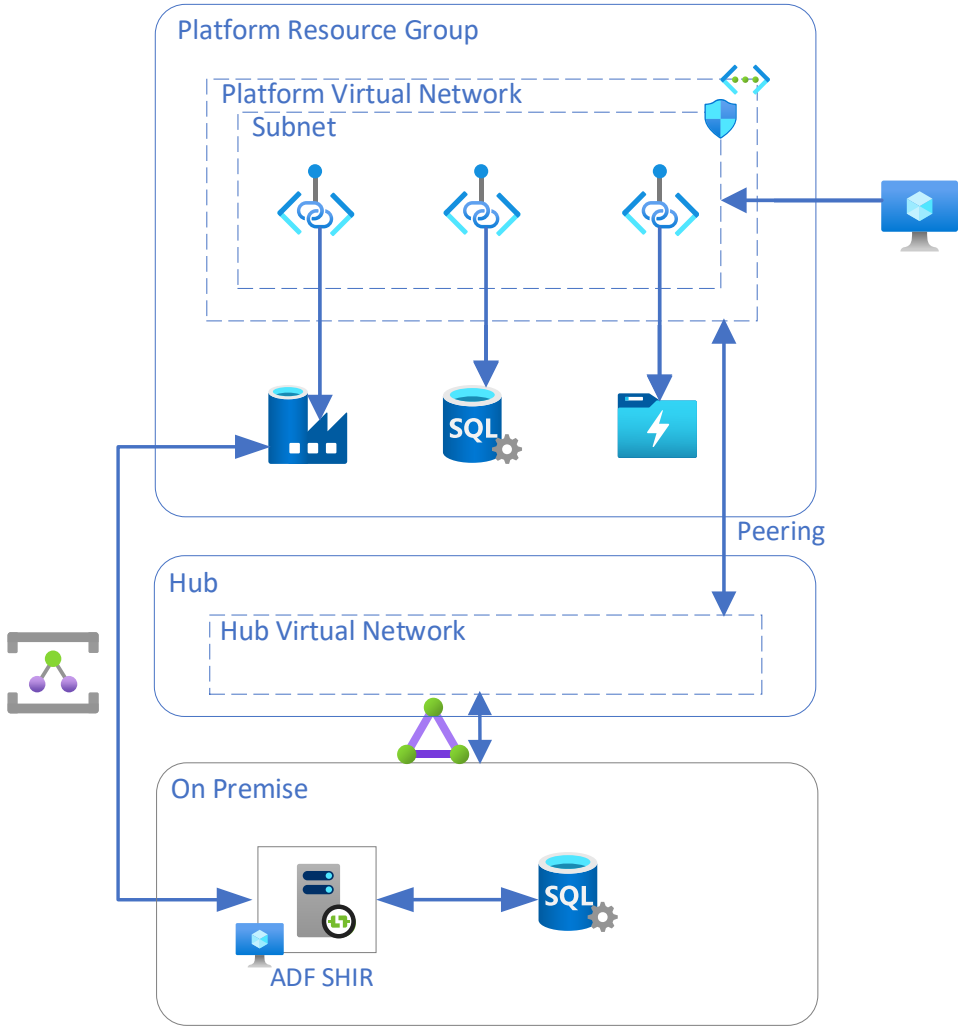
- × No control over address space
- × No control over compute resource
- × Limited to same region as ADF/Synapse resource
- × Will likely still need additional private endpoints
- × Get's complex when on-prem gets involved

Azure IR with Managed VNet



Good for most architectures

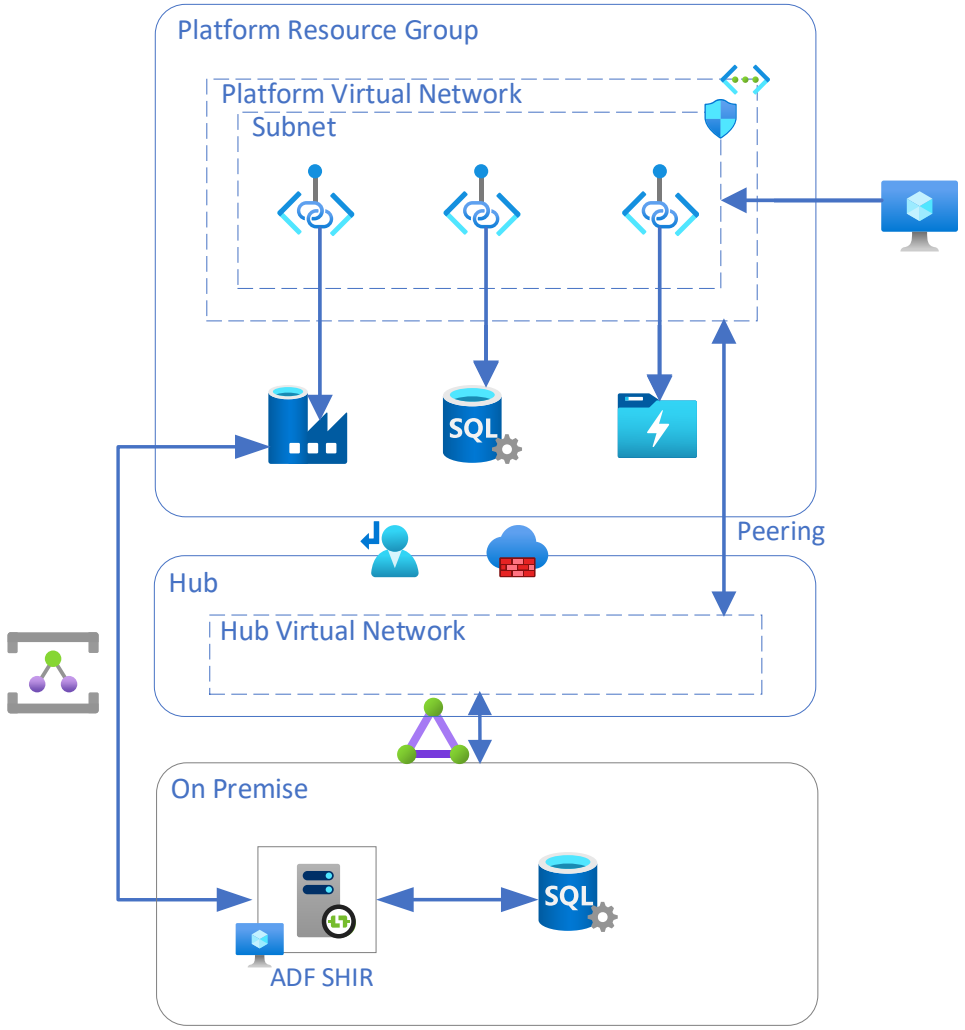
SHIR



Pros

- ✓ Full control over compute infrastructure
- ✓ Tried and tested method
- ✓ Allows for connectivity to on-prem data sources

SHIR



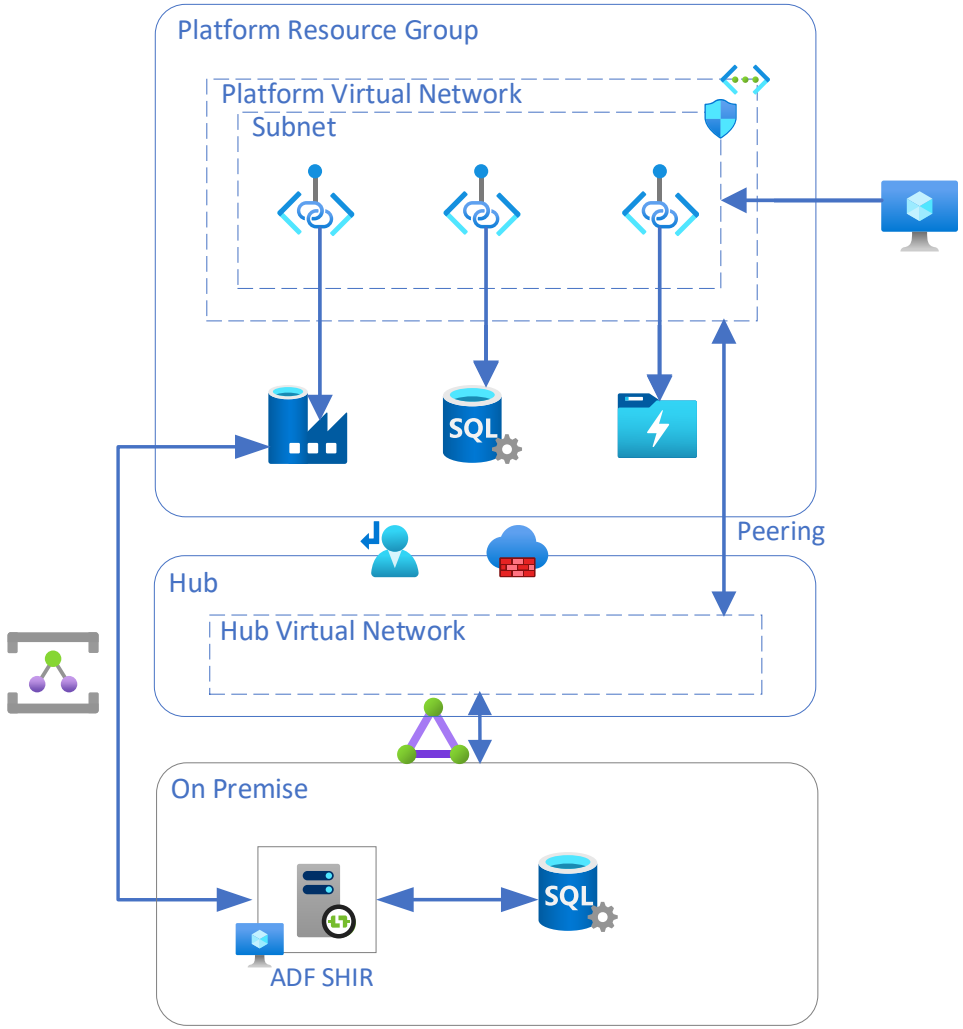
Cons

- × Requires pre-existing network infrastructure
- × There will likely be maintenance of lots of firewall rules and network config
- × Performance requirements could drive up cost

You are responsible for:

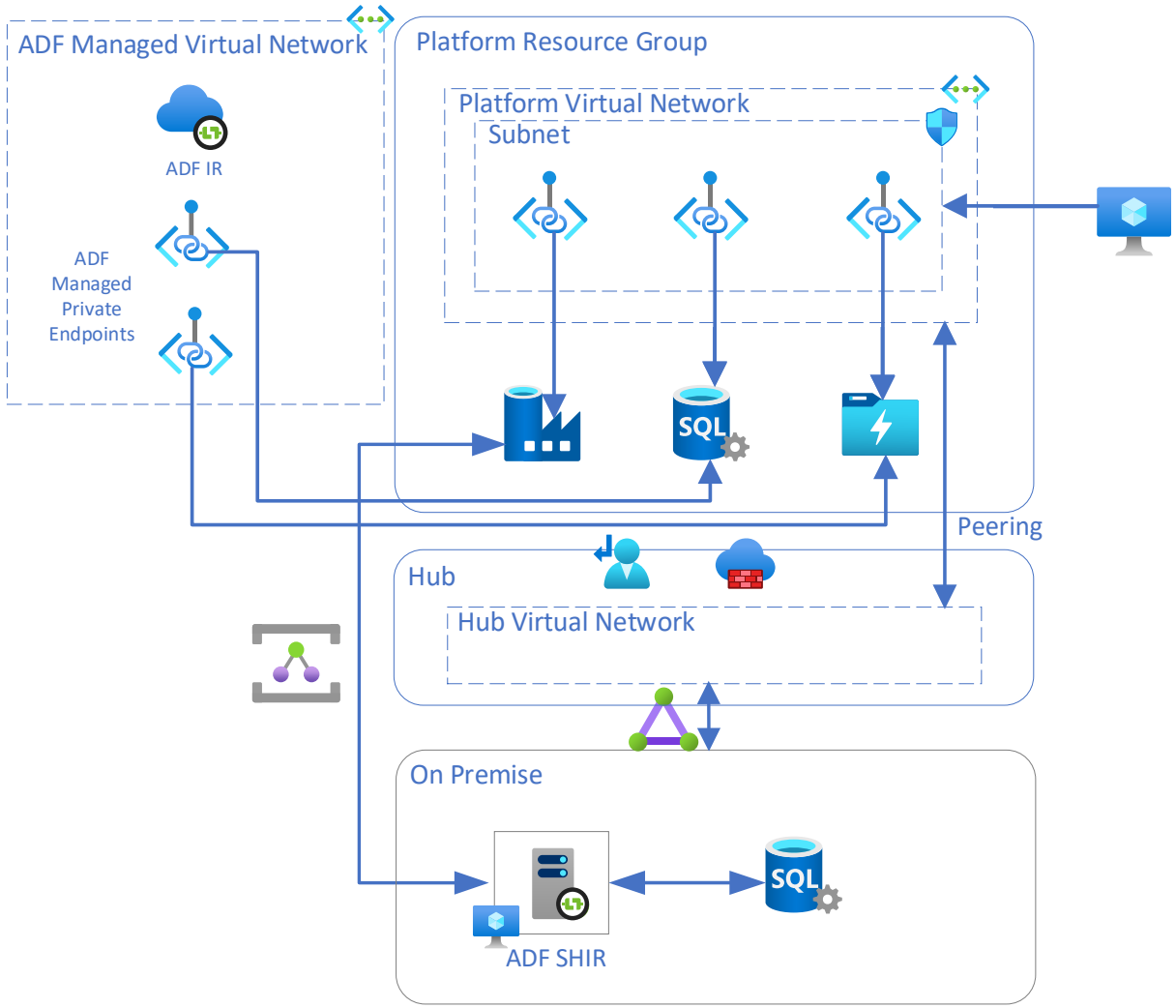
- × Networking connectivity to on-prem data sources from SHIR server
- × Network security of SHIR server
- × Network connectivity to Azure services
- × Provisioning and maintaining the compute resource

SHIR

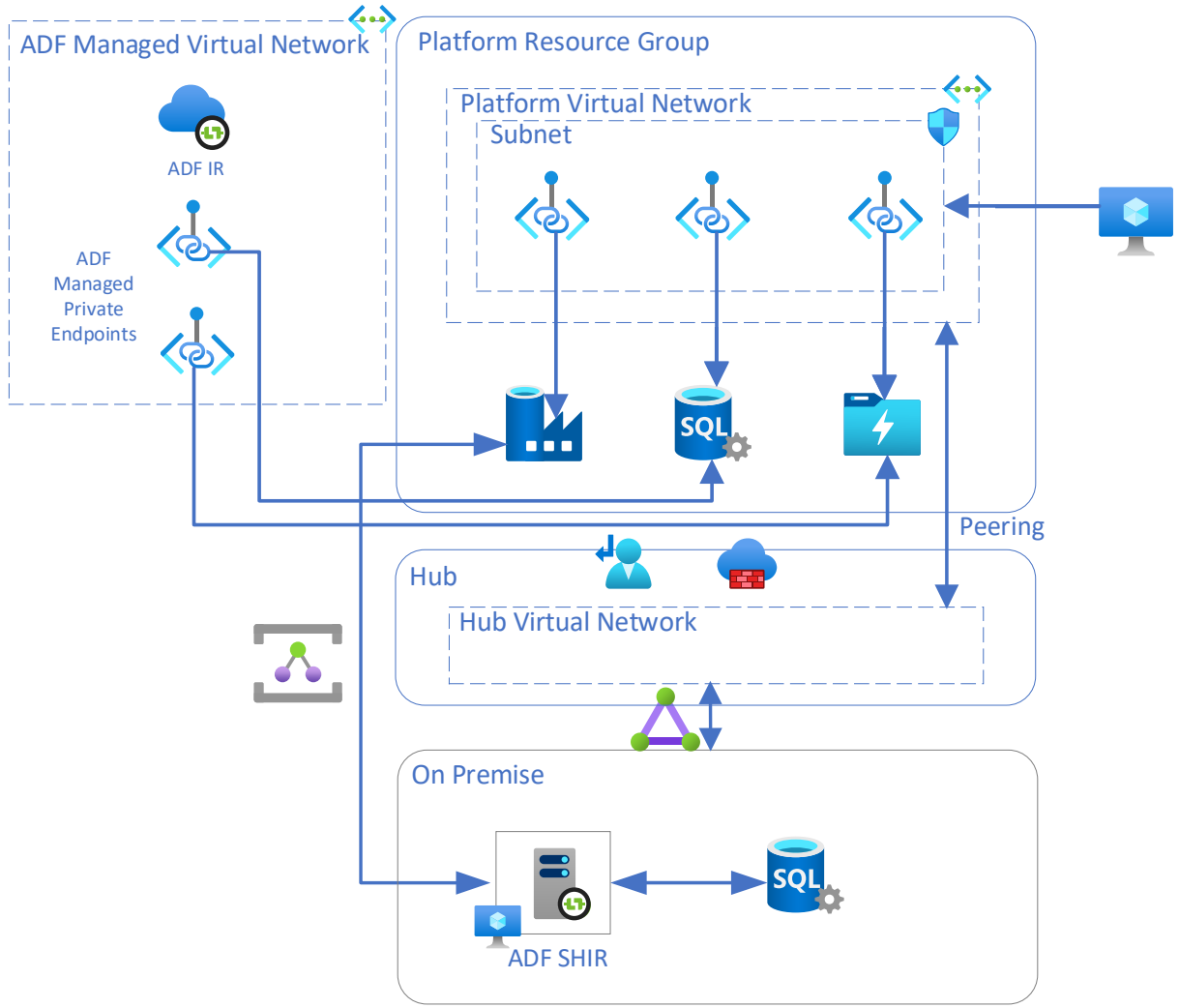


Recommended for on-prem connectivity

Mix & Match


ADF Managed Virtual Network
ADF IR
ADF Managed Private Endpoints
Platform Resource Group
Platform Virtual Network
Subnet
SQL
Peering
Hub
Hub Virtual Network
On Premise
SQL
ADF SHIR

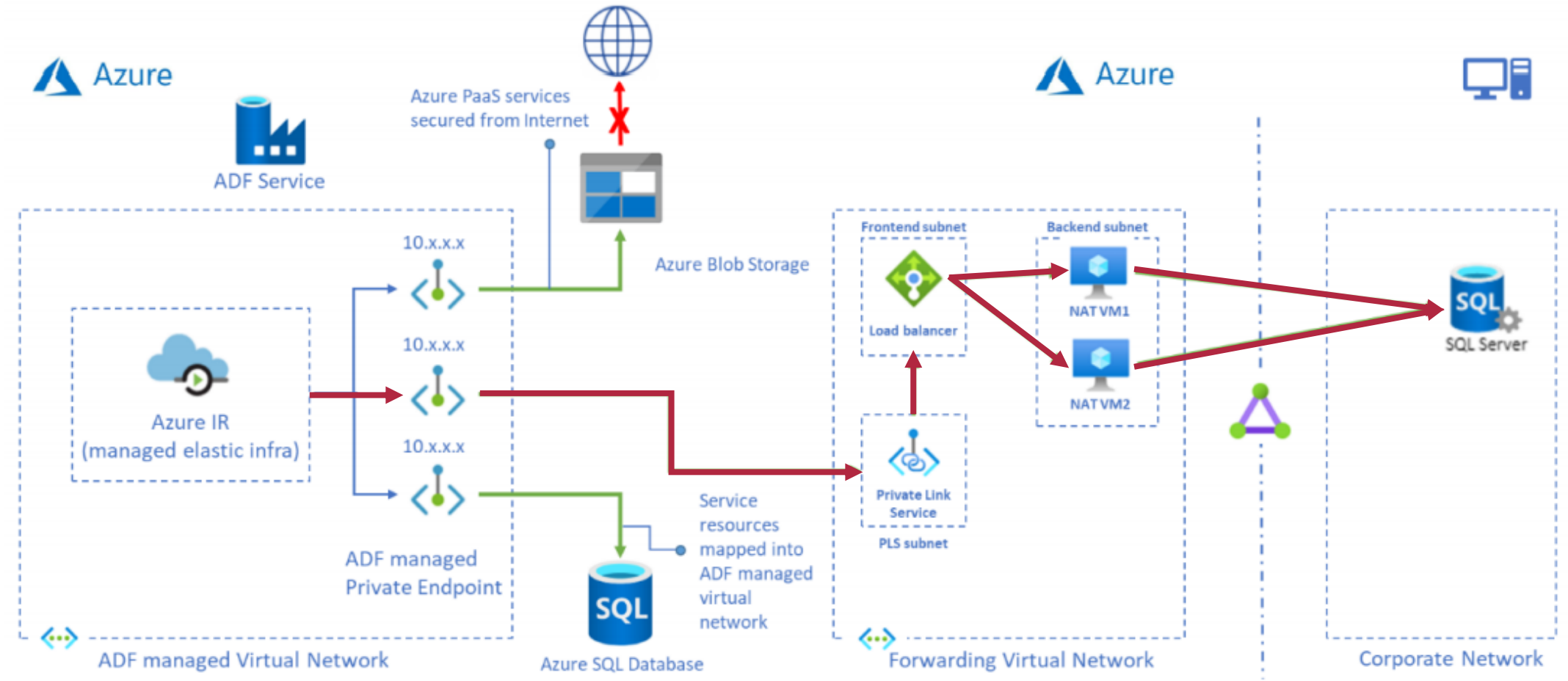
Mix & Match



Use when you need on-prem connectivity....

... and have performance / cost / concurrency requirements

Azure IR with Managed VNet and IP Forwarding



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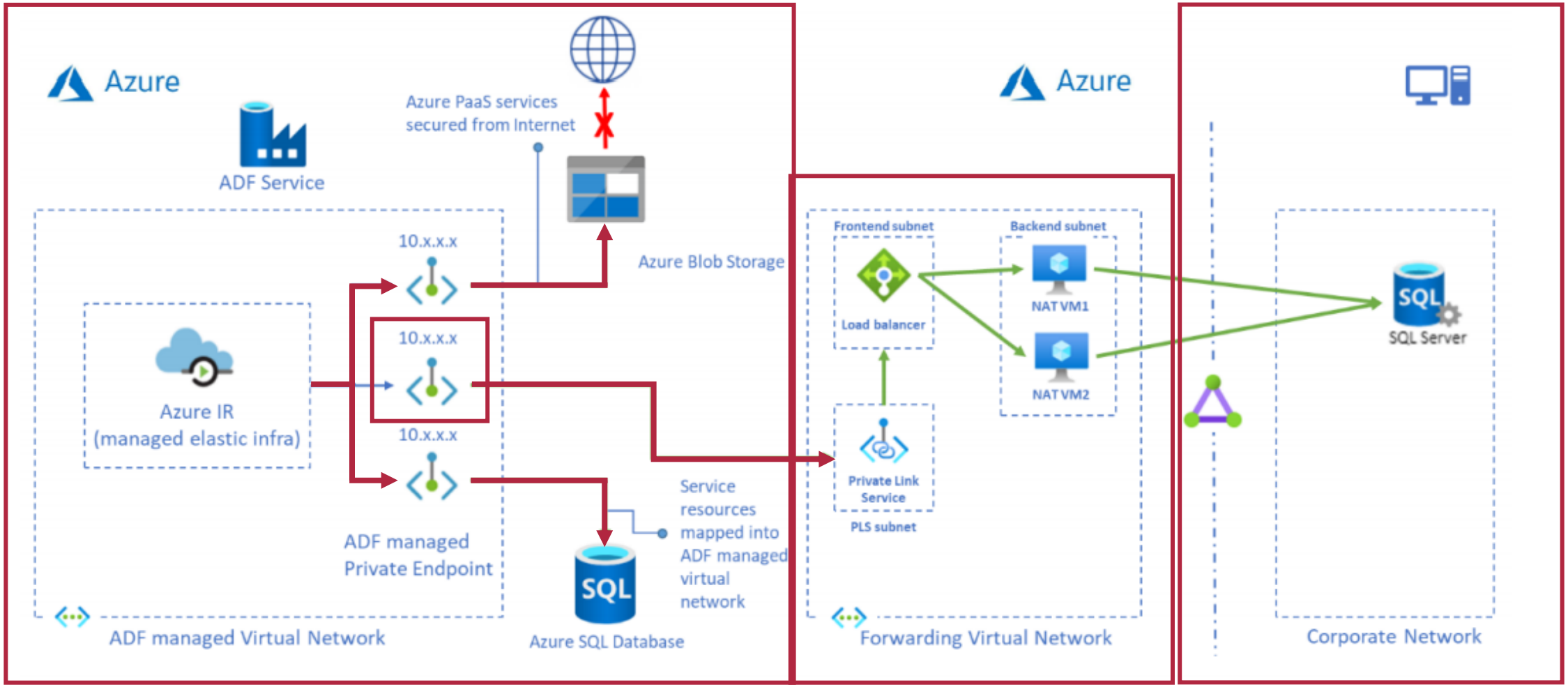

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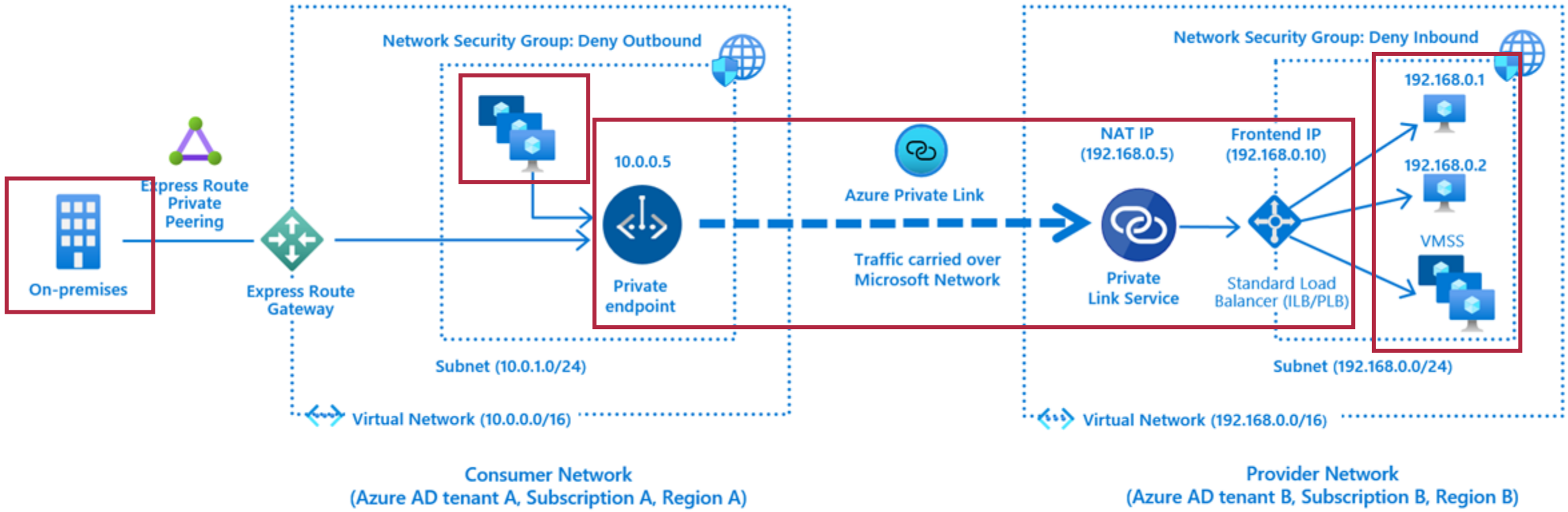

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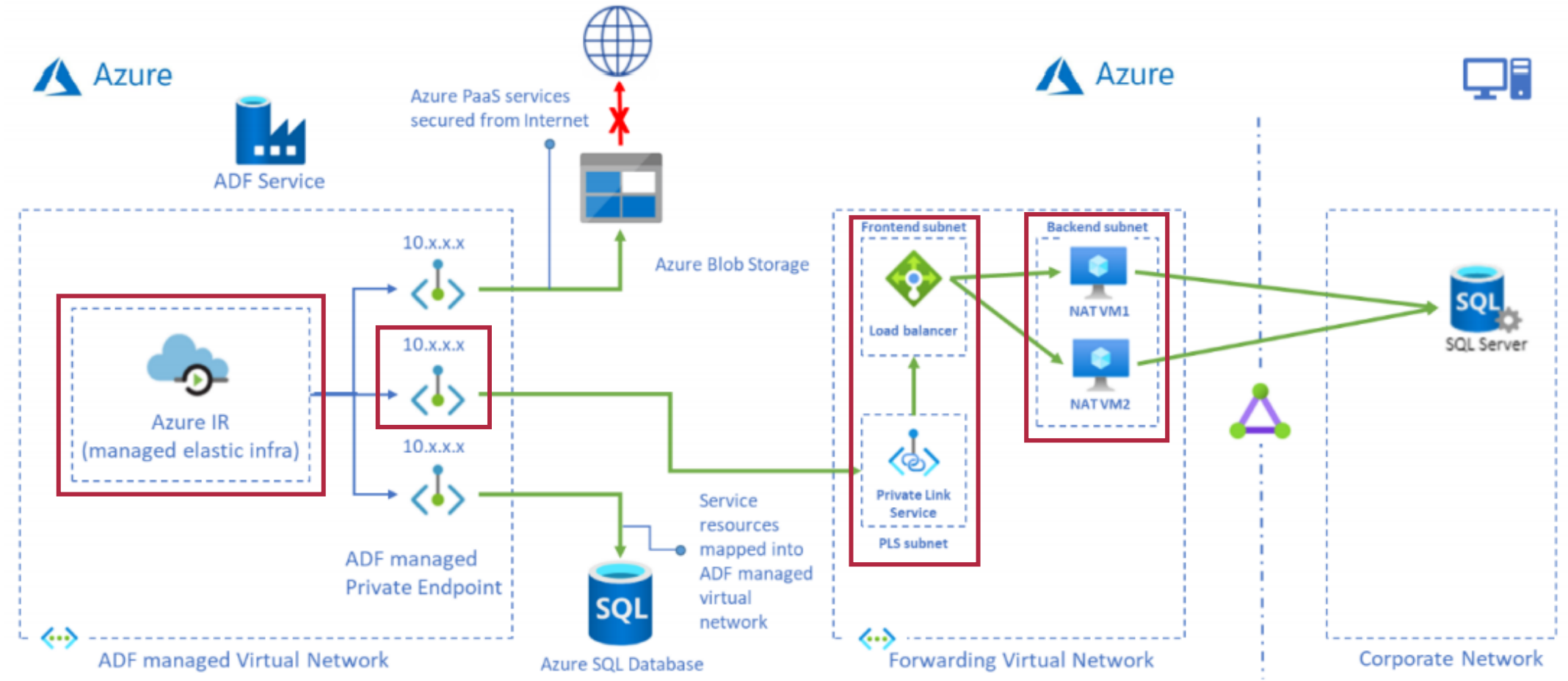

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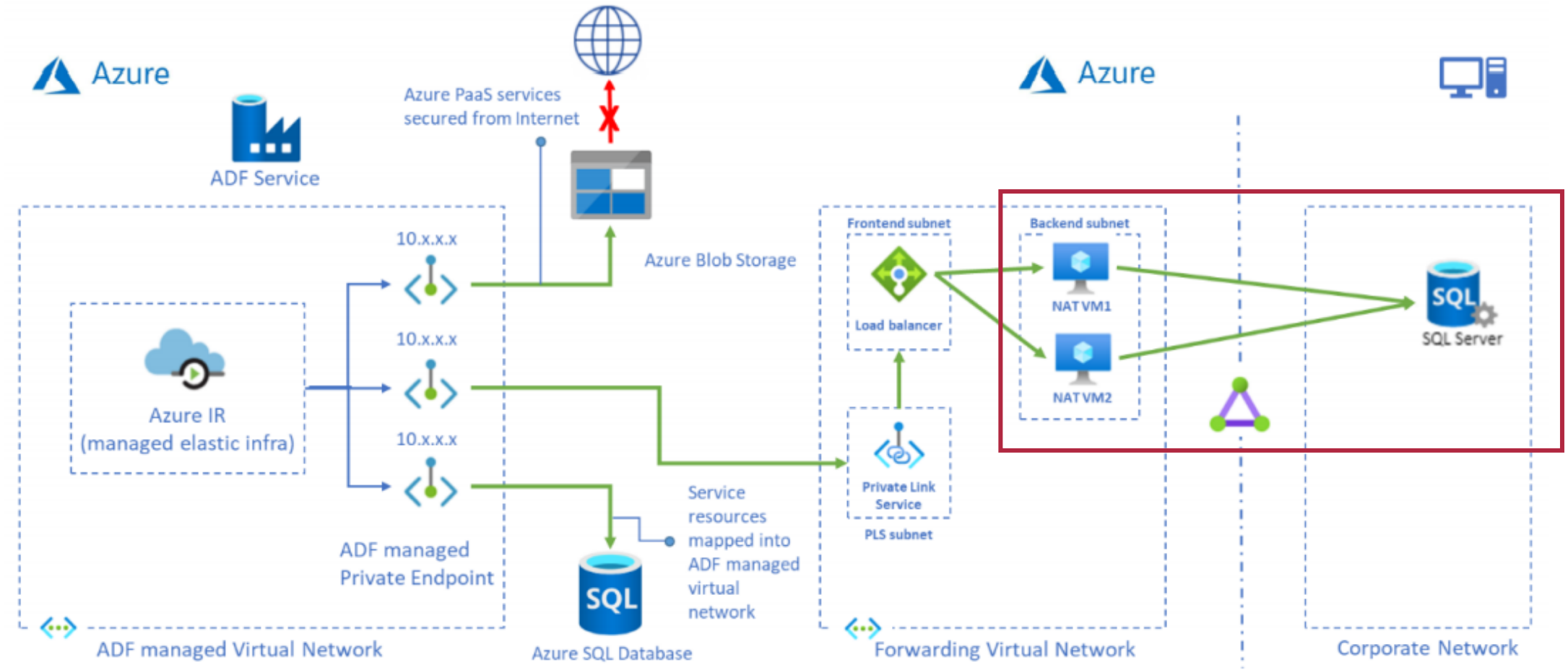

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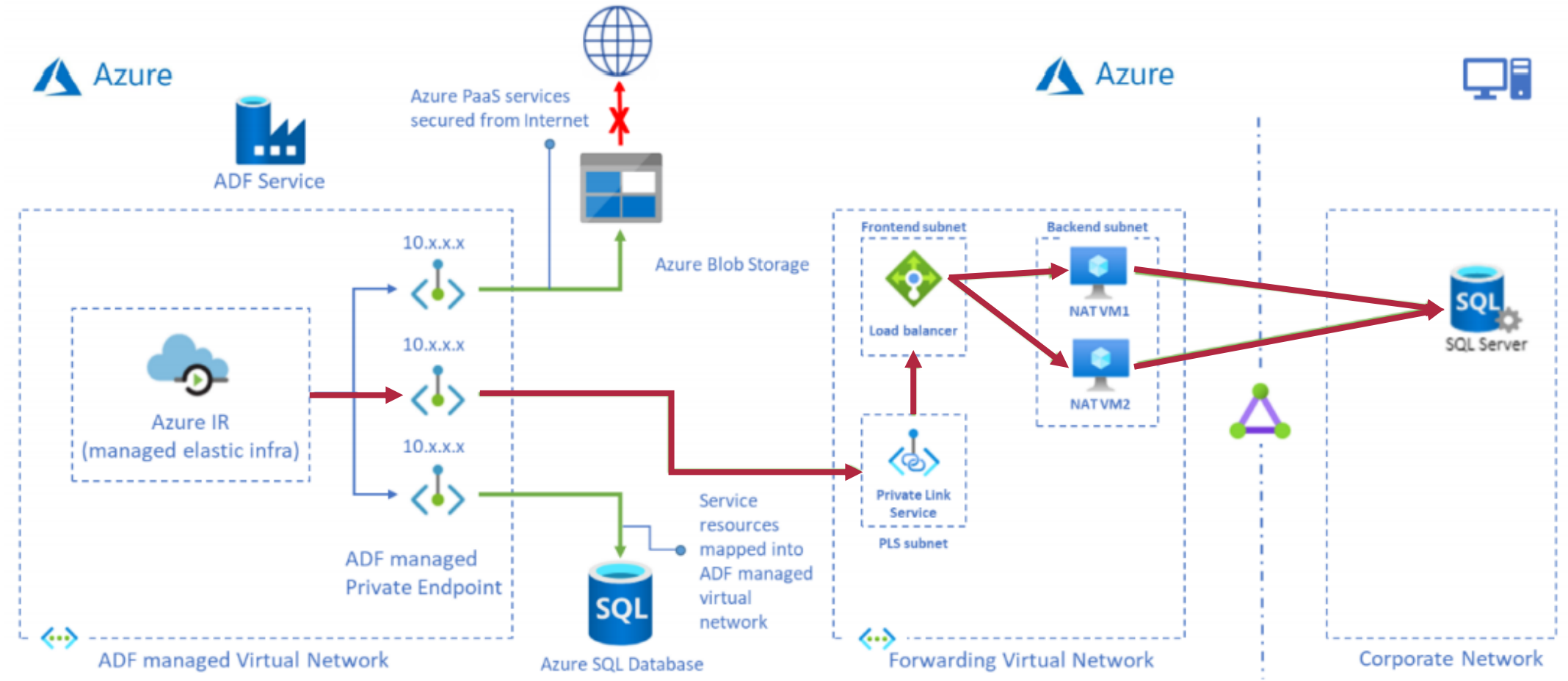

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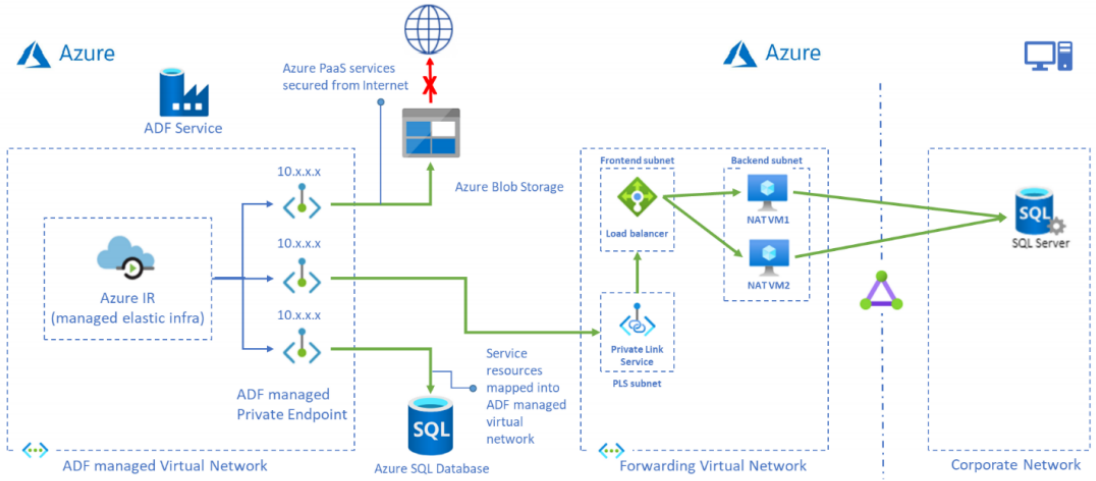
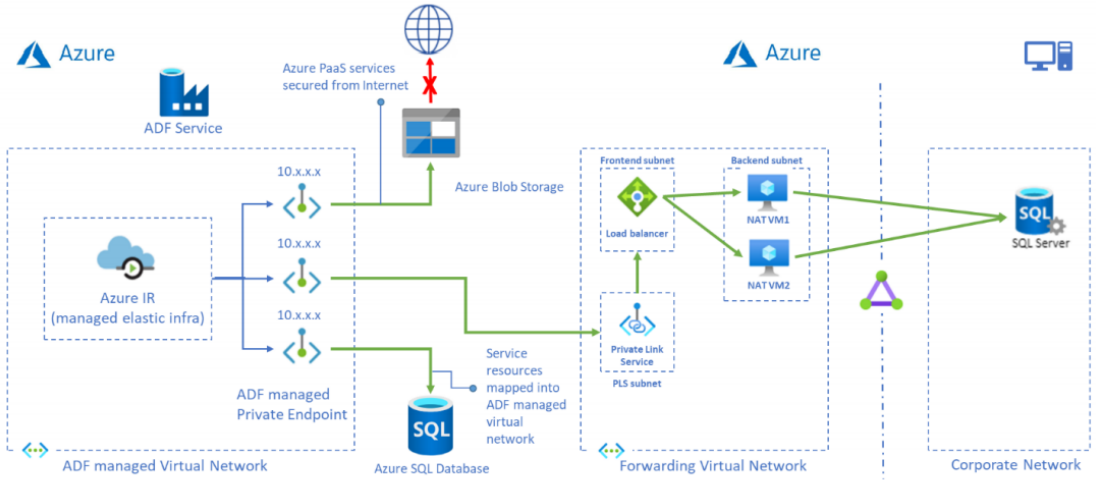


Pros

- ✓ Don't have to manage the compute infrastructure for your IR
- ✓ Don't have to manage the network security of your IR server

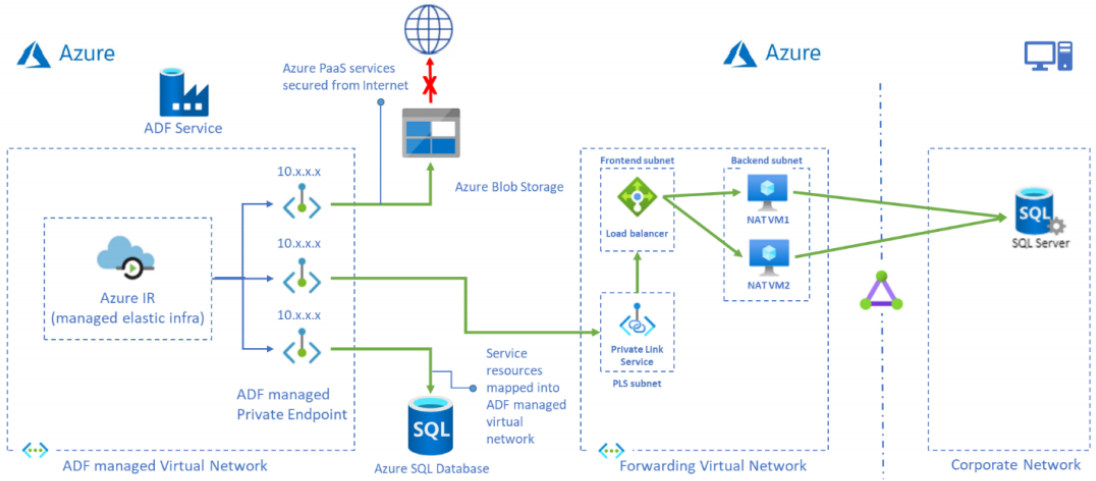
Azure IR with Managed VNet and IP Forwarding



Cons

- × Really quite complicated!
- × Requires lots of networking

Azure IR with Managed VNet and IP Forwarding

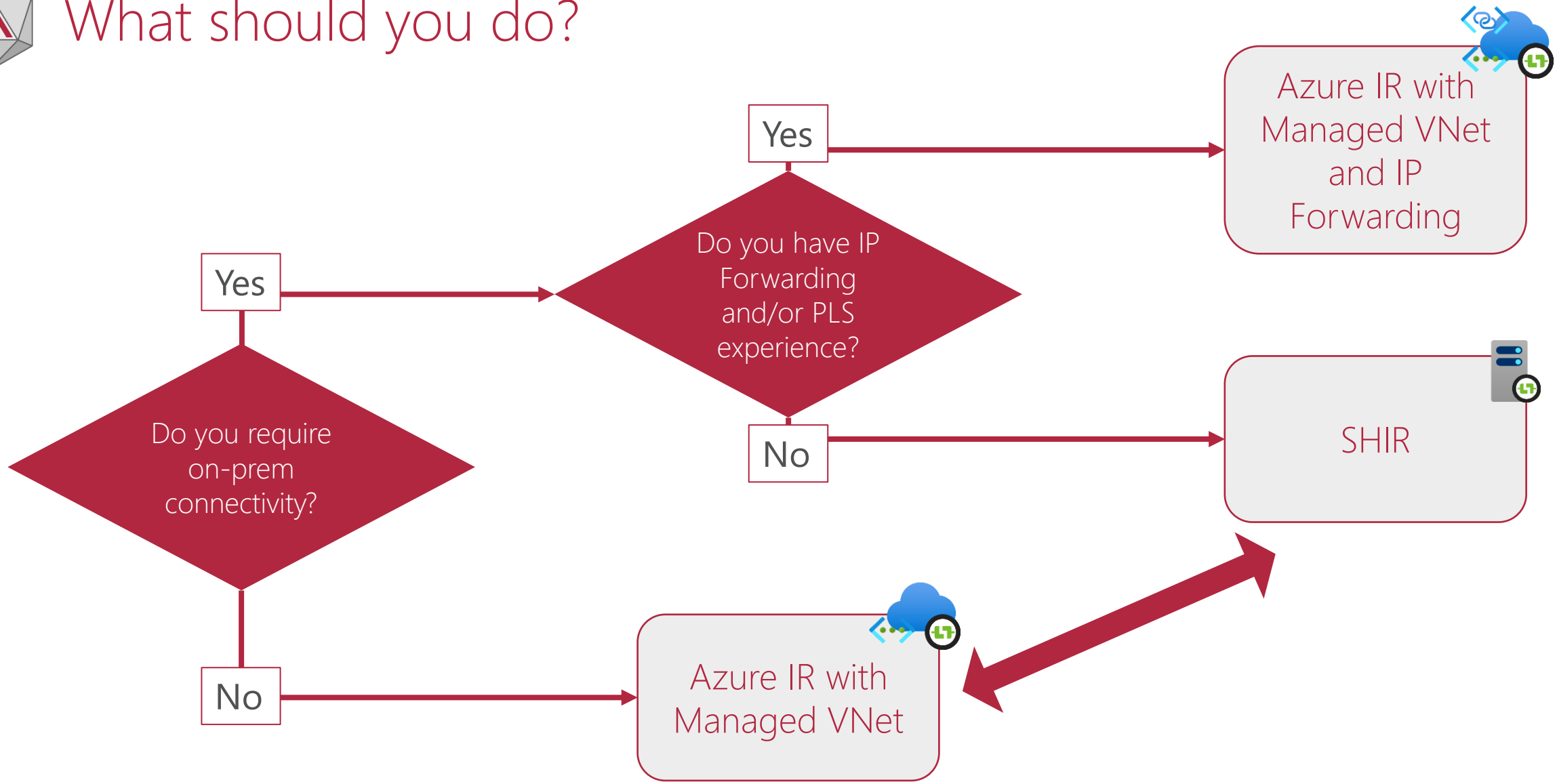


Not having to manage the IR, but more networking...

Is the trade off worth it?

What should you do?

What should you do?



Additional Resources

- Azure IR with Managed VNet and IP Forwarding tutorial
- General Integration Runtime documentation
- My blog: How to Configure an on-prem SHIR with private endpoints and a web proxy

Thank you

Grace O'Halloran (grace-o-halloran)

@graceaohalloran

grace@advancinganalytics.co.uk

www.thinkingacloud.co.uk

https://evals.datagrillen.com/