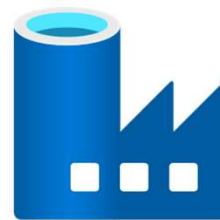


Connecting to your data securely with Synapse and Data Factory Integration Runtimes



Introduction



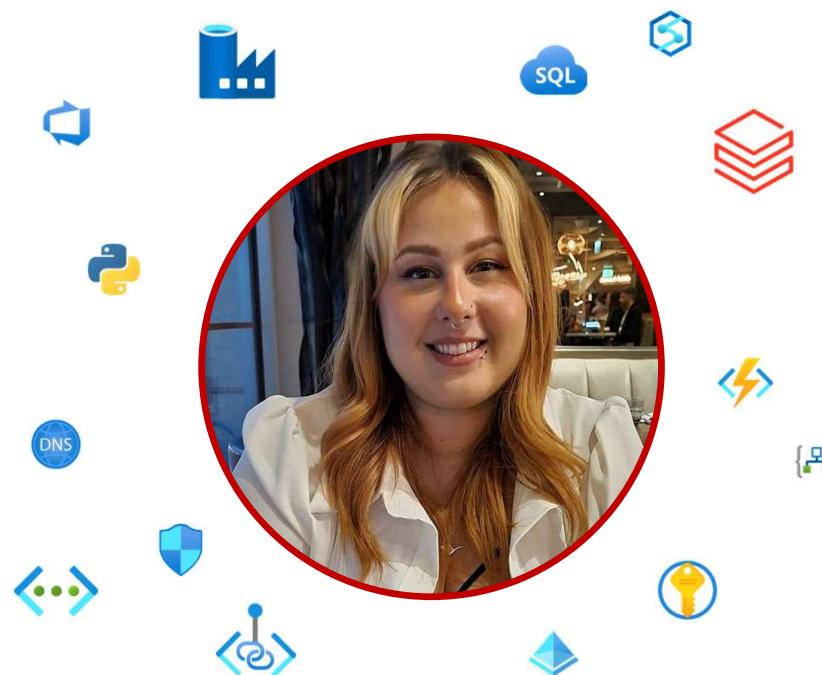
Introduction

in Grace O'Halloran (grace-o-halloran)

twitter @graceaohalloran

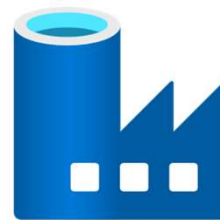
email grace@advancinganalytics.co.uk

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**ADVANCING
ANALYTICS**

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



What to expect



What to expect

1

Network Security in
Data Platforms



2

Introduction to types
of Integration
Runtimes



3

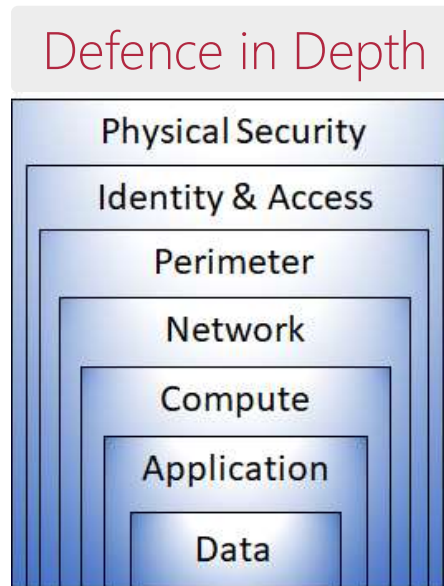
Common Secure
Architecture Patterns



Network Security in Data Platforms



Network Security





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?

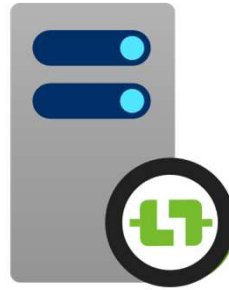
"Compute infrastructure used by ADF and Synapse for data integration capabilities"



Integration Runtimes



Azure IR



SHIR



Azure-SSIS



Azure Integration Runtime

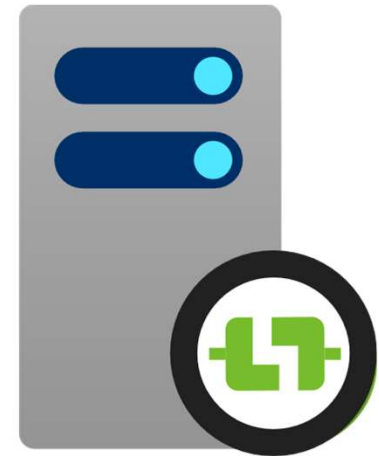
- Fully managed, serverless compute
- Elastic scaling
- Option for Managed VNet
 - Managed Private Endpoints





Self-Hosted Integration Runtime

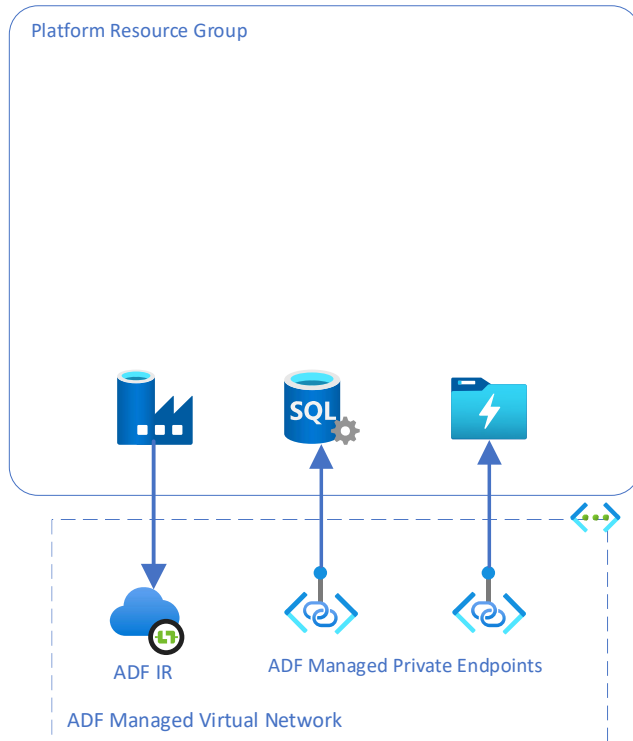
- Installed on your own machine
 - On-prem or VM
- High availability options
- Full control over the network



Architecture Patterns



Azure IR with Managed VNet

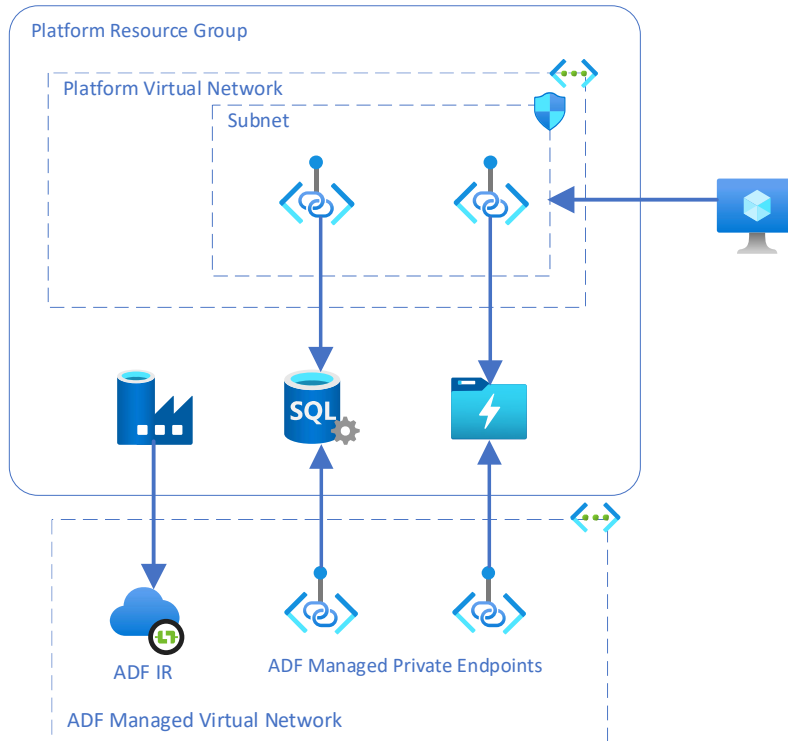


Pros

- ✓ 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

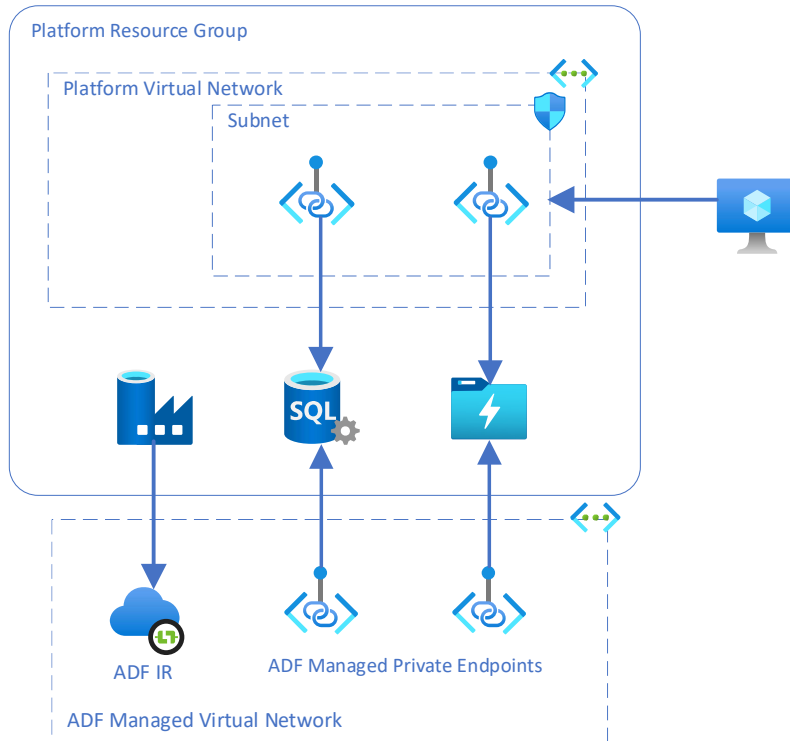


Cons

- × 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
- × Can increase ADF cost; the Managed VNet certainly adds cost
- × Get's complex when on-prem gets involved



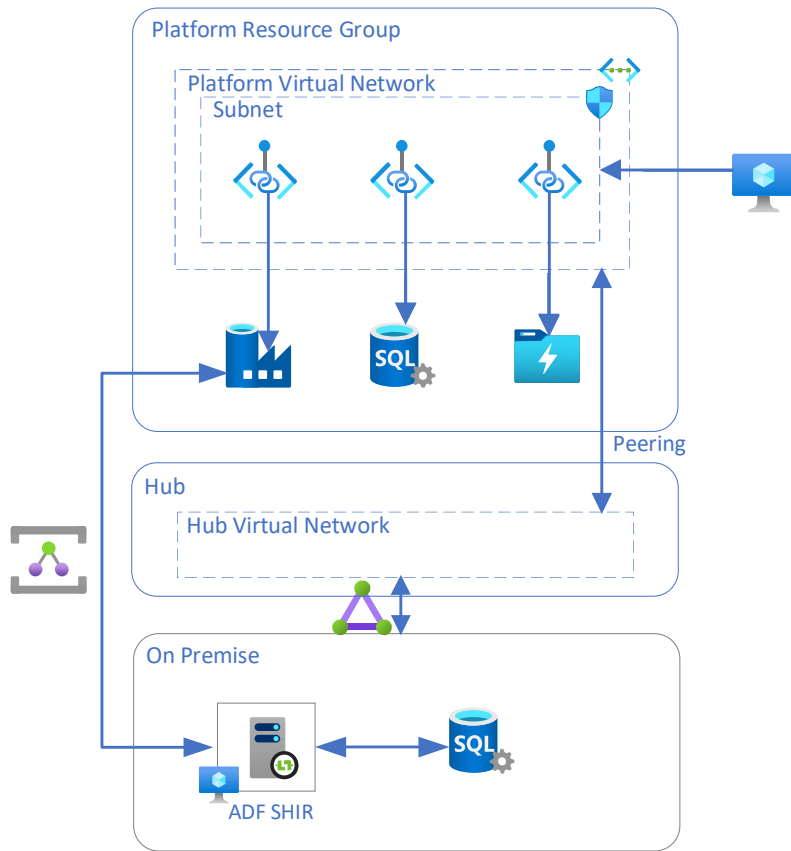
Azure IR with Managed VNet



Good for most
architectures



SHIR

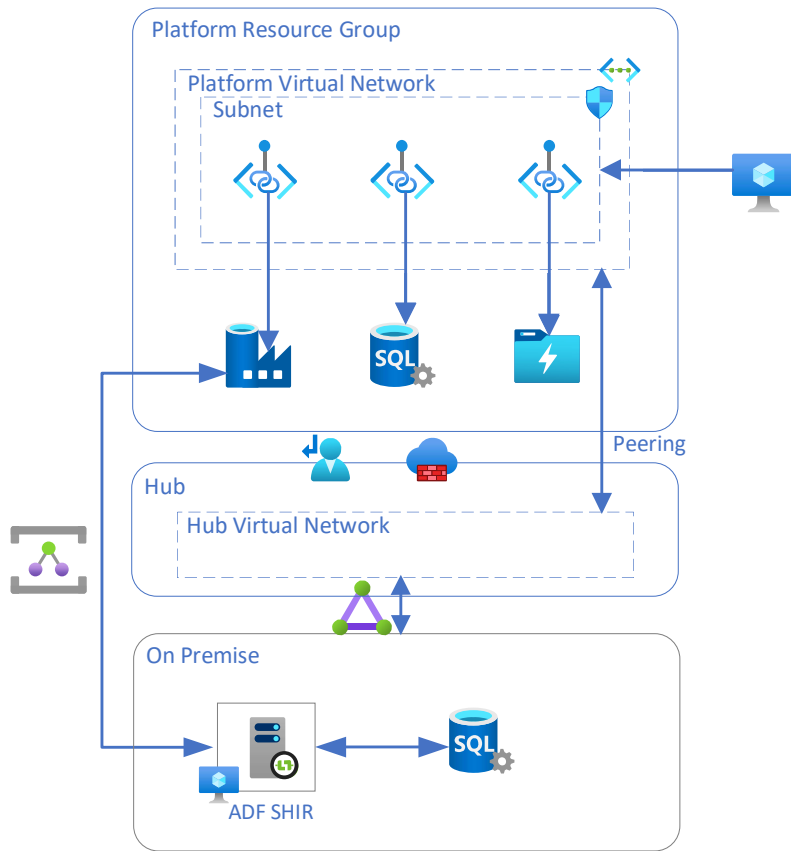


Pros

- ✓ Full control over compute infrastructure
- ✓ Tried and tested method
- ✓ Runtime costs are cheaper than Azure IR with Managed VNet
- ✓ Allows for connectivity to on-prem data sources



SHIR



Cons

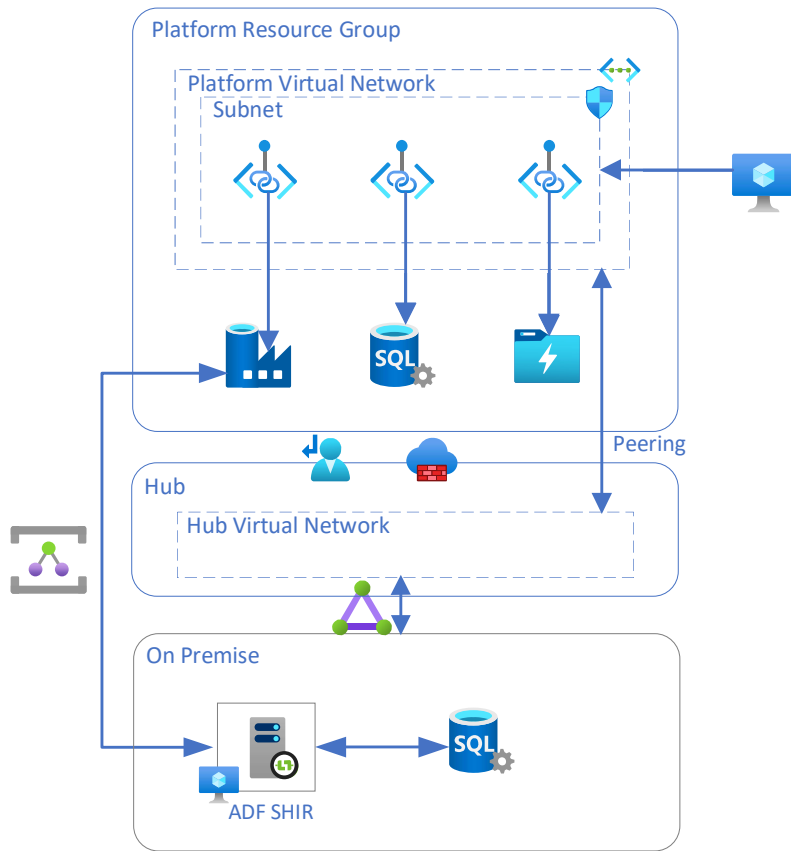
- × Requires pre-existing network infrastructure
- × There will likely be maintenance of lots of firewall rules and network config
- × Pay for compute resource: performance requirements could drive up cost

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



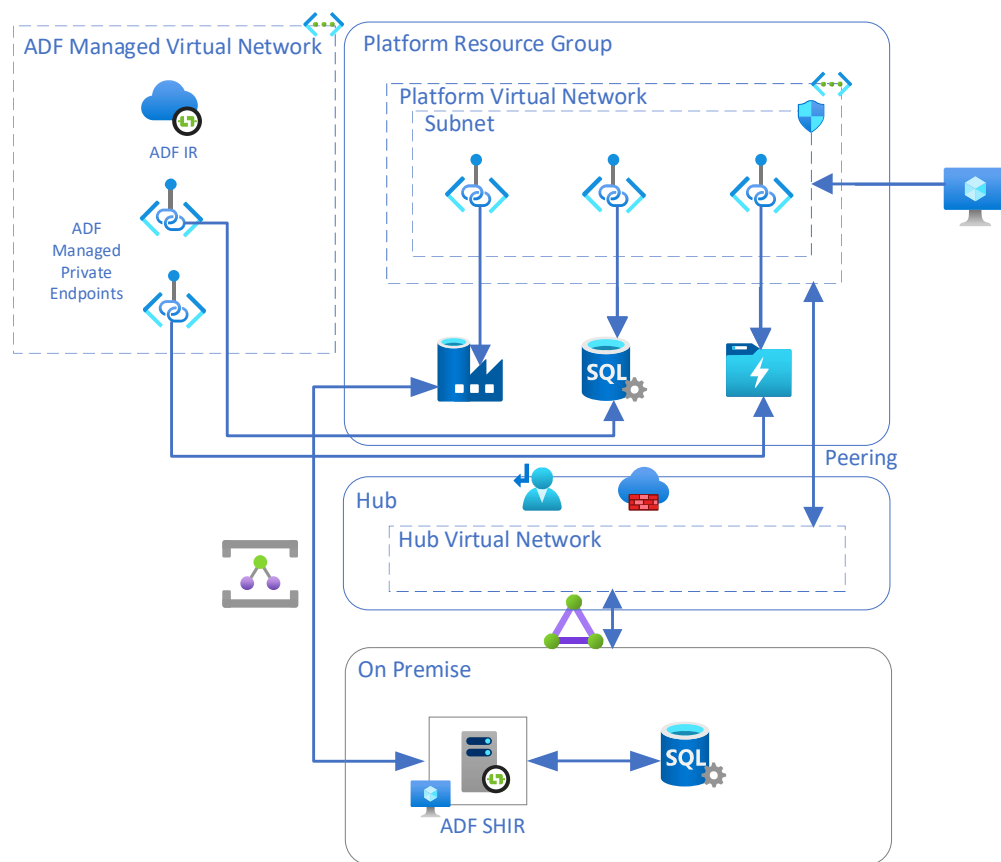
SHIR



Recommended for
on-prem
connectivity

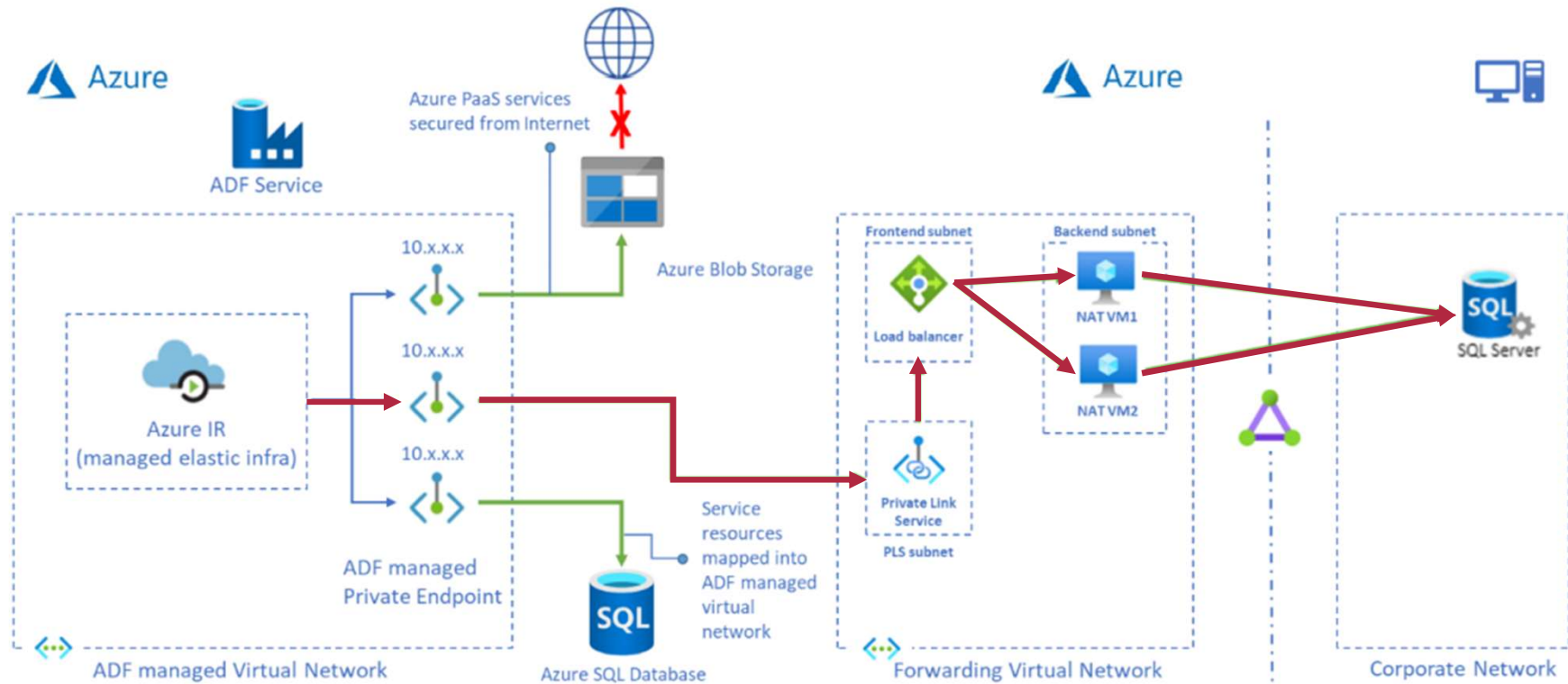


Hybrid



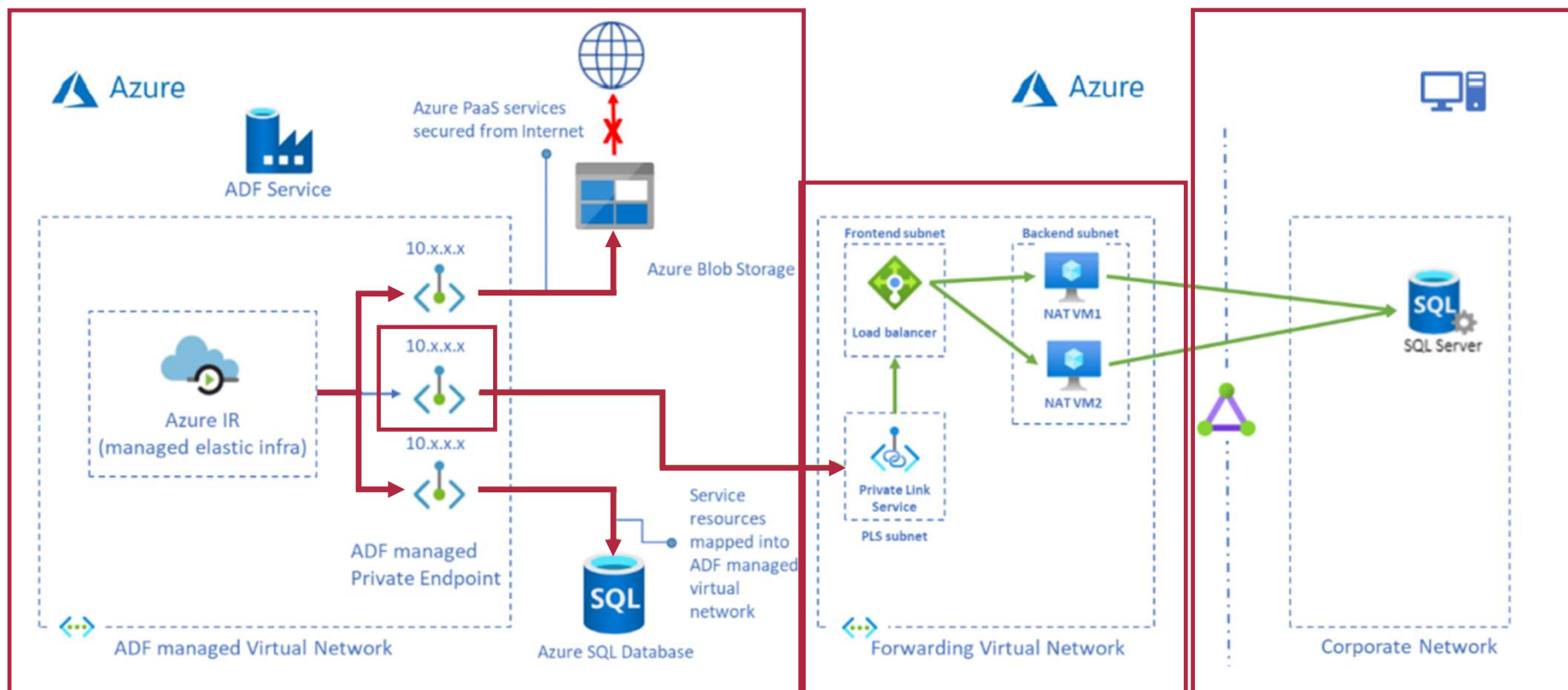


Azure IR with Managed VNet and IP Forwarding



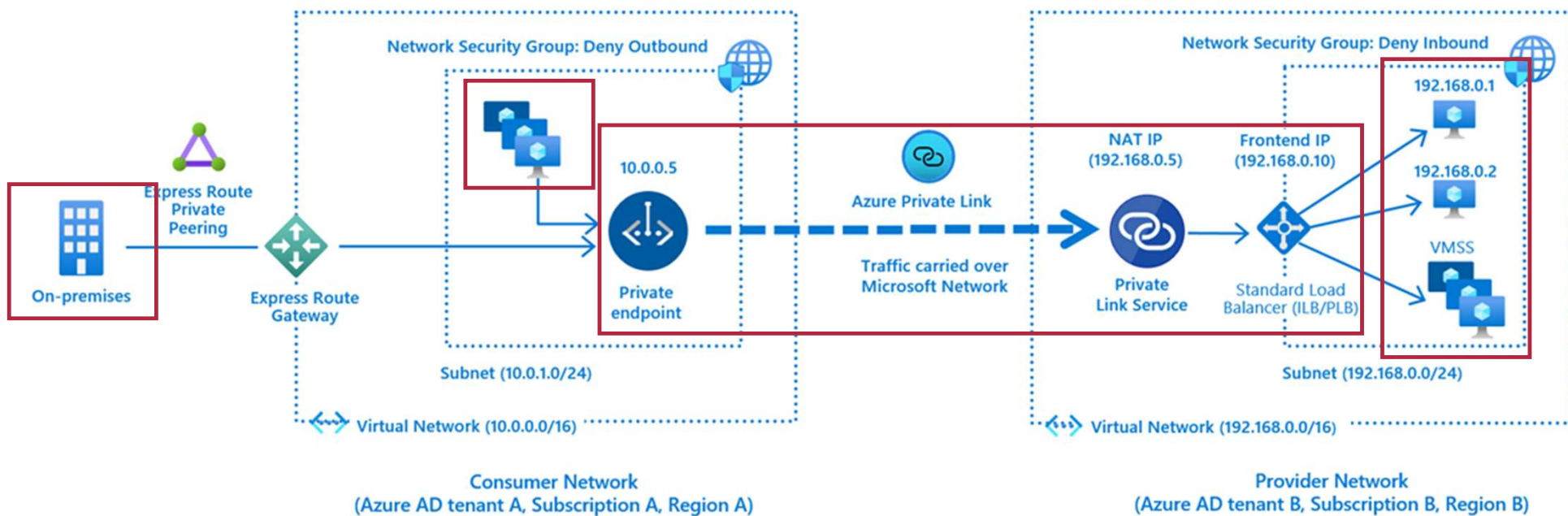


Azure IR with Managed VNet and IP Forwarding



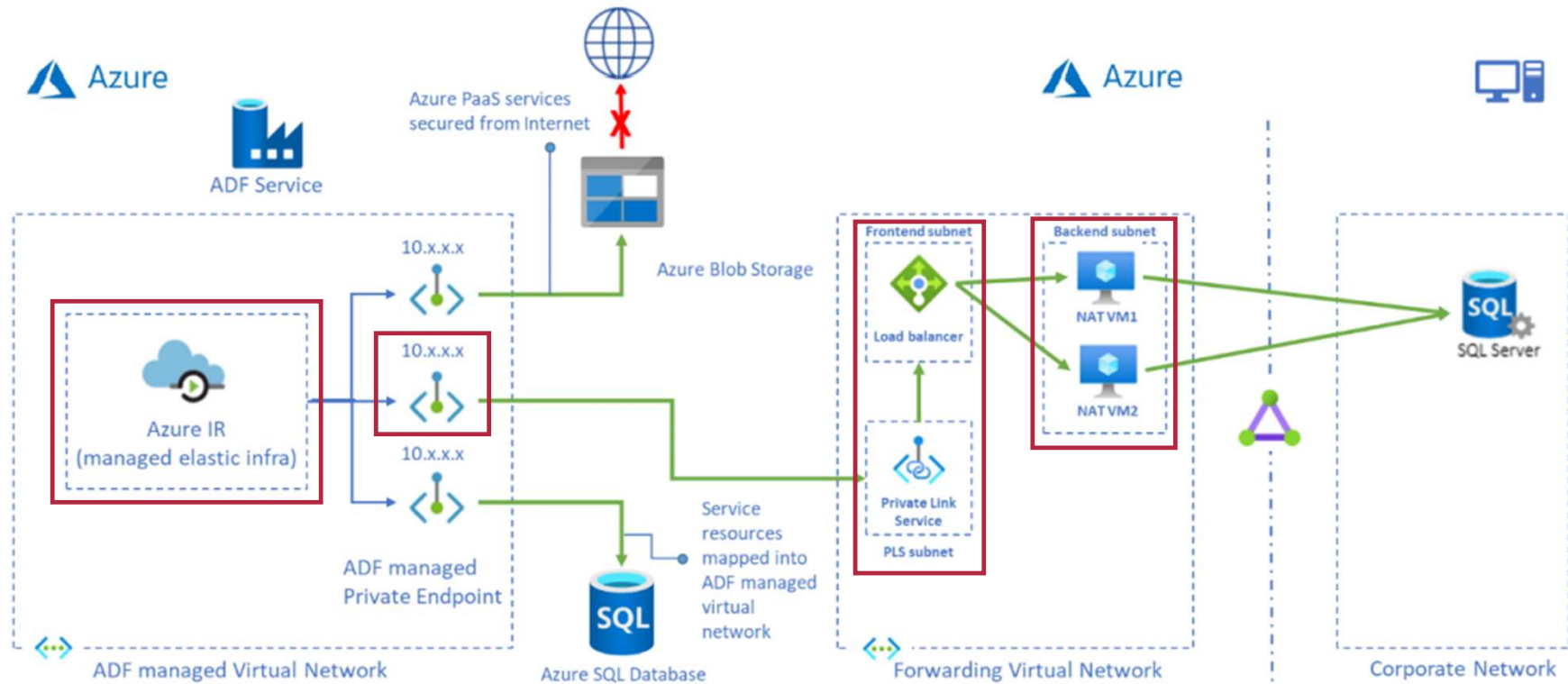


Azure IR with Managed VNet and IP Forwarding



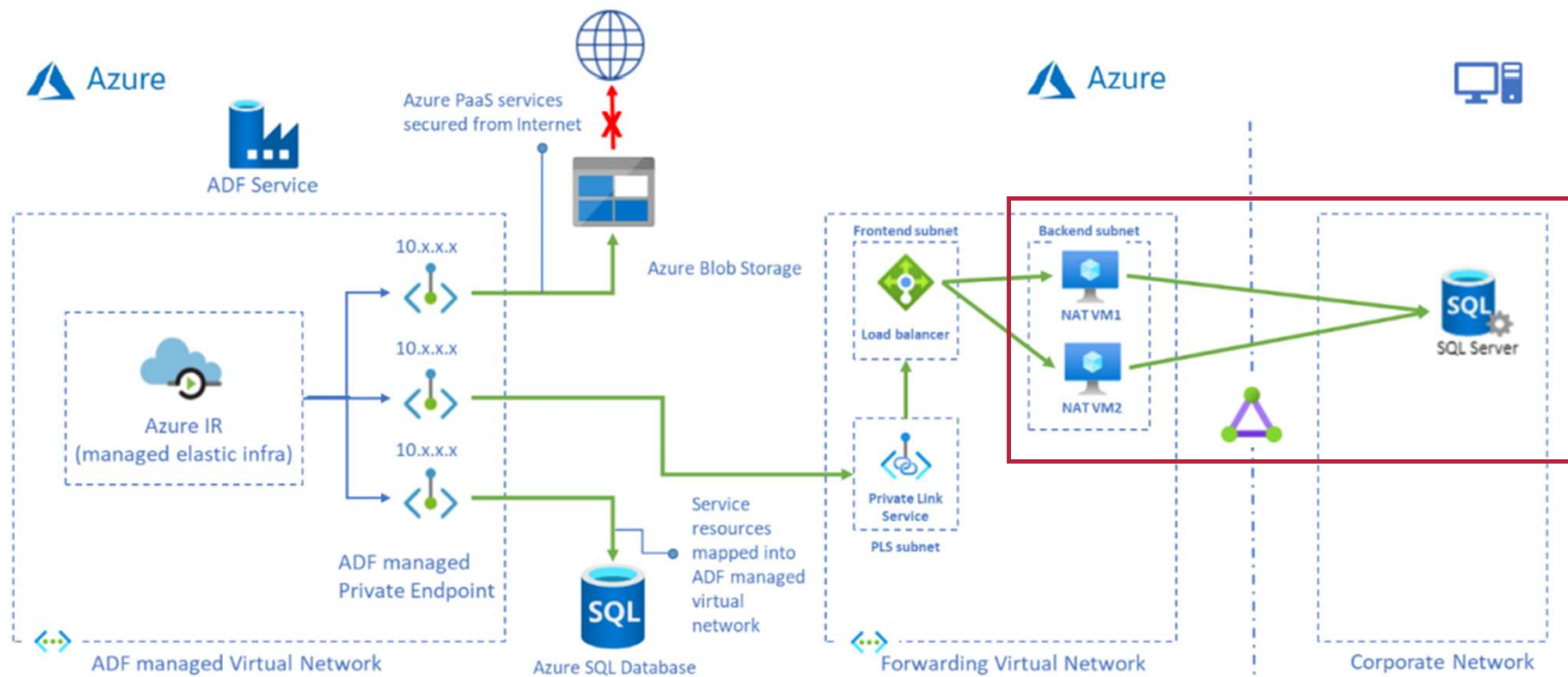


Azure IR with Managed VNet and IP Forwarding



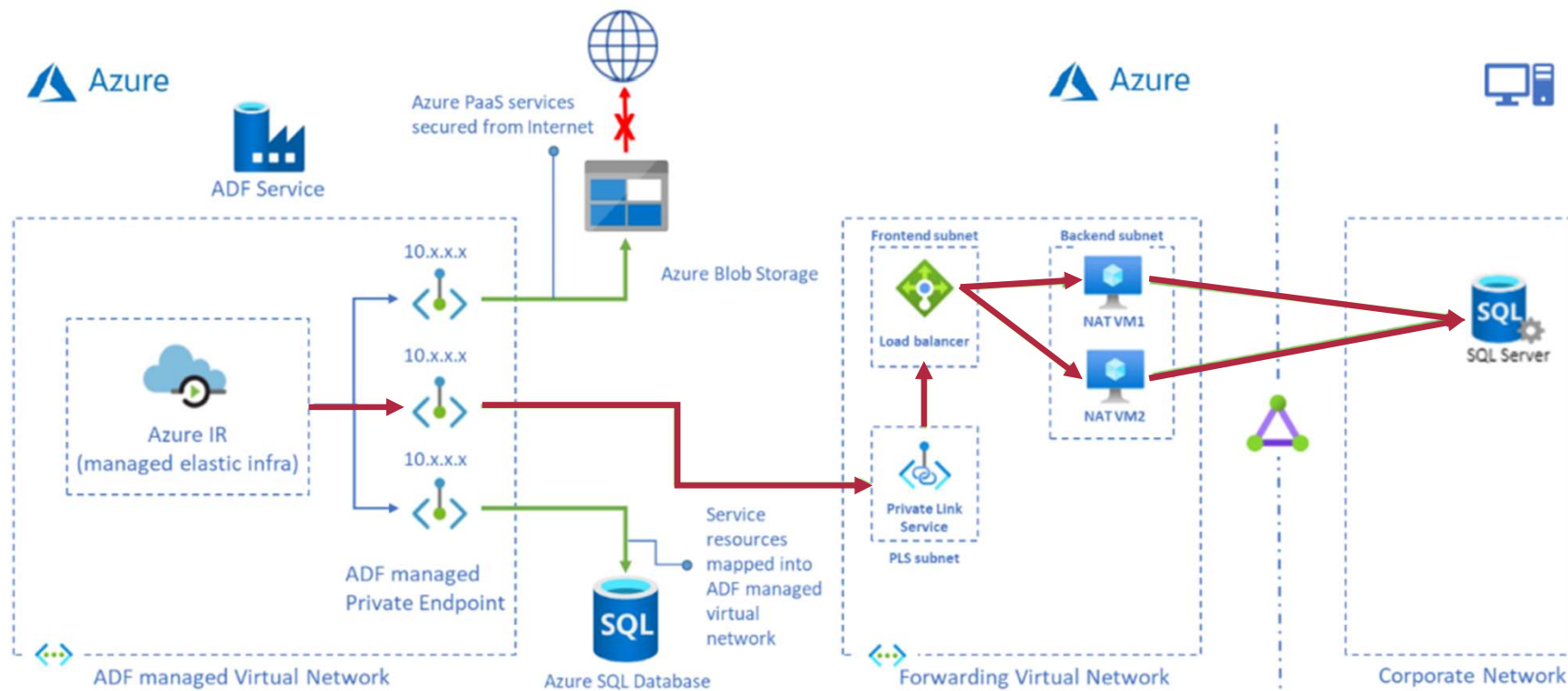


Azure IR with Managed VNet and IP Forwarding



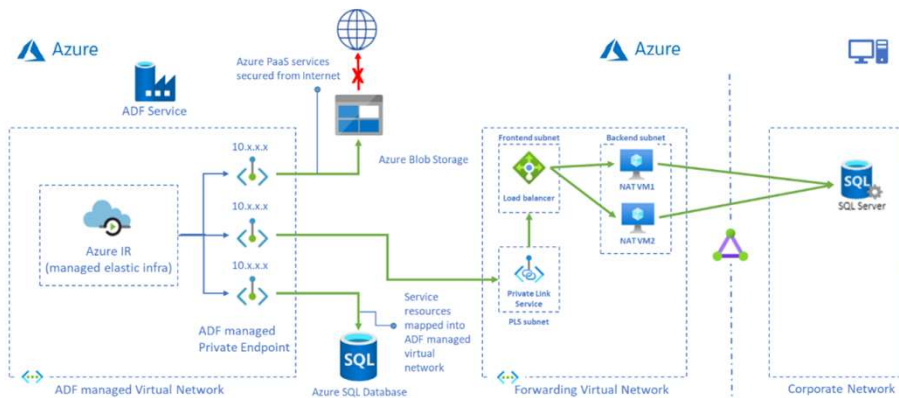


Azure IR with Managed VNet and IP Forwarding





Azure IR with Managed VNet and IP Forwarding

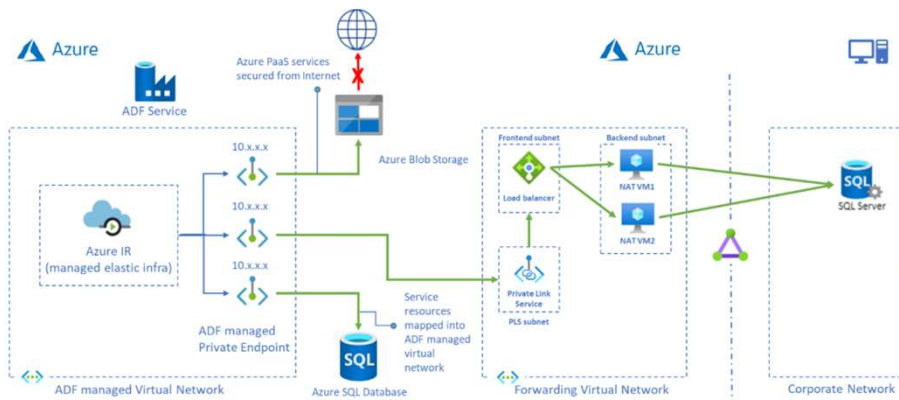


Pros

- ✓ 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

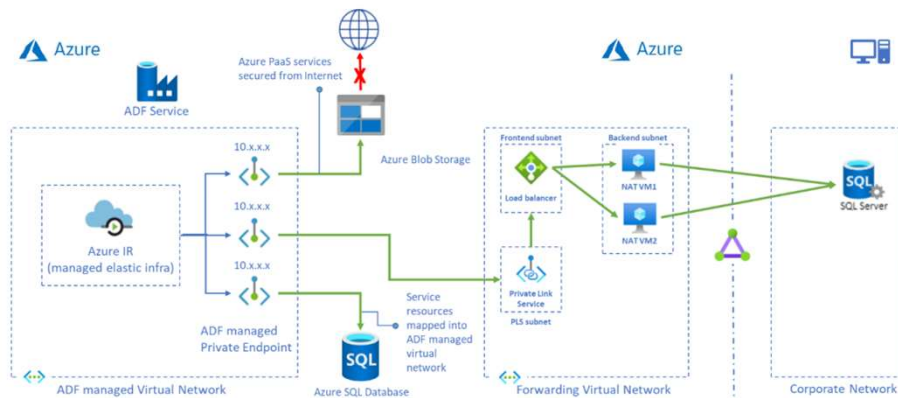


Cons

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



Azure IR with Managed VNet and IP Forwarding



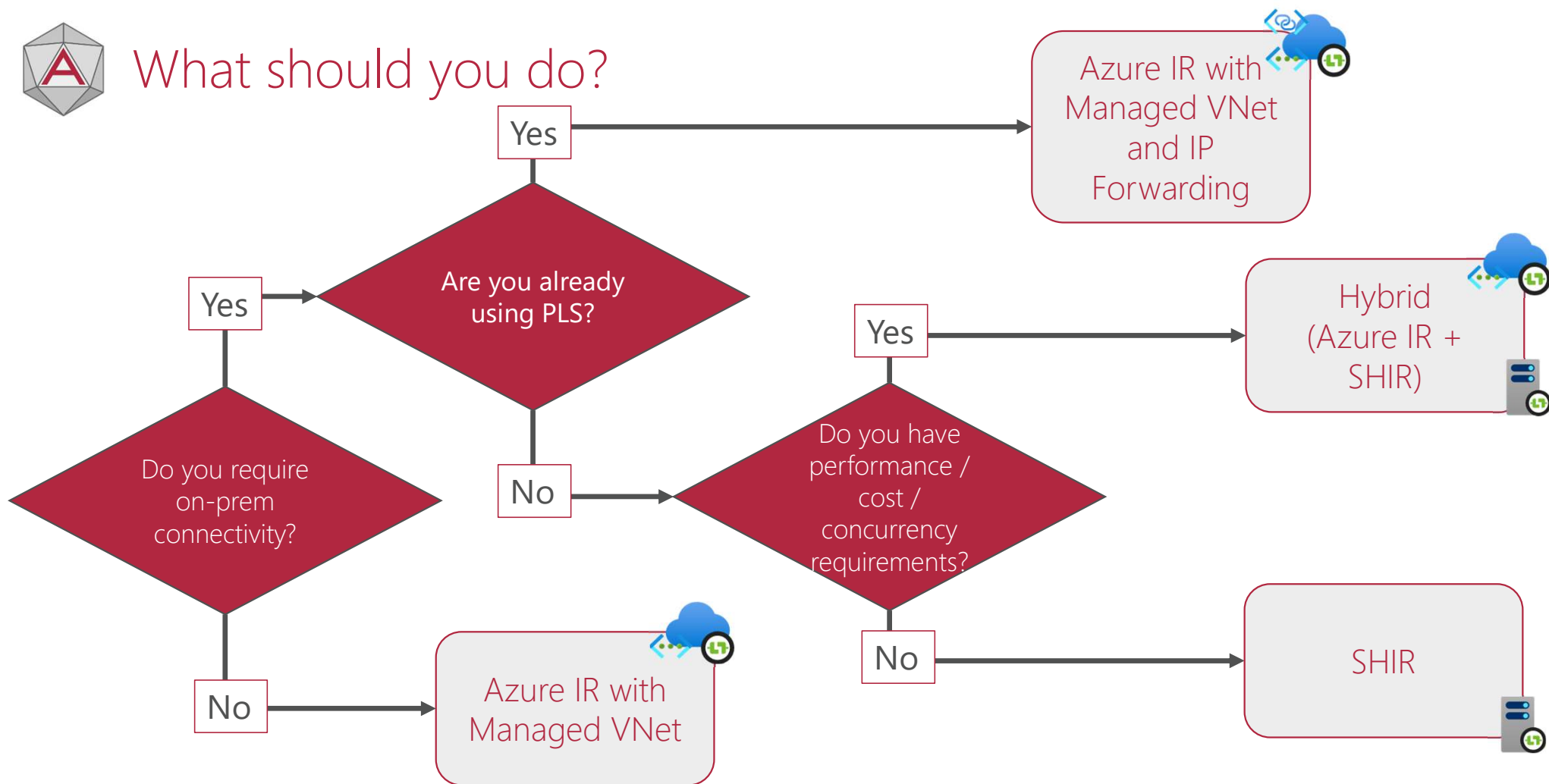
Not having to manage the IR, but more networking...

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](#)
- My blog:
 - [Part 1: How to choose the right ADF or Synapse Integration Runtime for a Secure Network Topology](#)
 - [Part 2: How to choose the right ADF or Synapse Integration Runtime for a Secure Network Topology](#)
 - [How to Configure an on-prem SHIR with private endpoints and a web proxy](#)
- [Martin Schoombe blog post on hidden costs of Azure IR with Managed VNet](#)
- [Microsoft's ADF Data Pipeline pricing details](#)

Thank you

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