![Sinergija18 - Digital breakthrough]
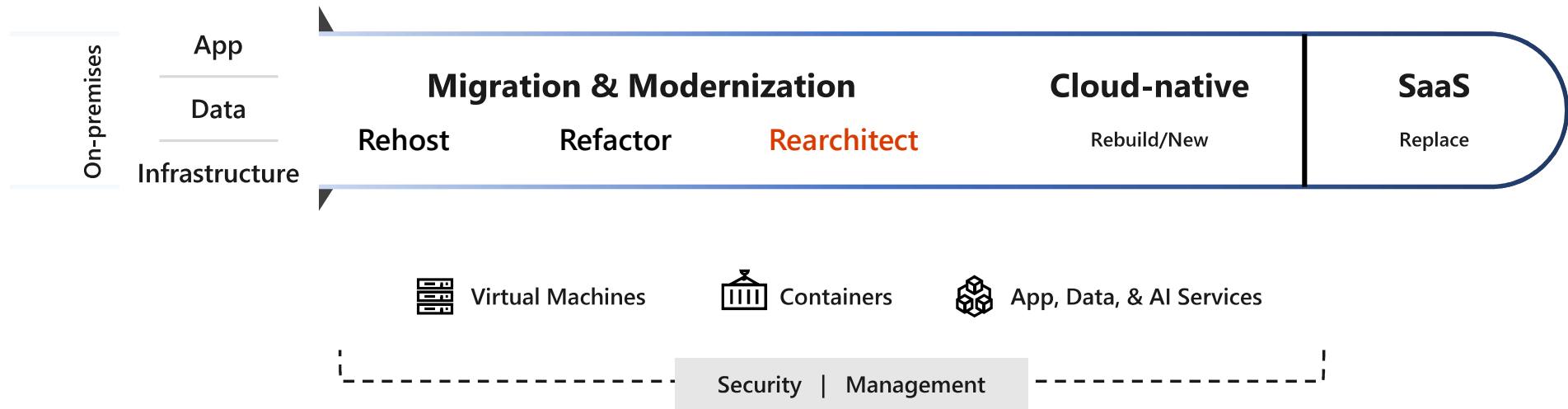
Architecting Azure Solutions

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Agenda

- Planing your journey to Azure
    - Toolbox

- Secure & Manage Workloads

- Optimize Migrated Resources

- Azure migration scenario guidance

- Foundational best practices
    - Set up migration Center of Excellence (CoE)
    - Plan migration strategies
    - Track migration scorecard
    - Best practices by phase
    - Govern Azure environments and resources
    - Extending Networking to Azure
    - Extending Identity to Azure

- Tips & Tricks

Planing your journey to Azure

	Migration & Modernization			Cloud-native	SaaS
	Rehost	Refactor	Rearchitect	Rebuild/New	Replace

On-premises
App
Data
Infrastructure

Virtual Machines   Containers   App, Data, & AI Services

Security | Management

Ground Zero : Know Your Tool Box

Goal is successful Azure migration: Pick the right tool for the job

Assess > **Migrate** > **Optimize** <> **Secure & Manage**

Assess	Migrate	Optimize	Secure & Manage
Azure Migrate	Azure Site Recovery (ASR)	Azure Cost Management	Azure Security & Management (e.g., Blueprint, Security Center, Backup, Monitor)
Data Migration Assistant (DMA)	Azure Database Migration Service		
SQL Server Migration Assistant (SSMA)	Azure Data Box		

We embrace ISV solutions

MOVERE   Cloudamize   CloudAtlas®   BitTitan   apporbit   CHEF

STRATOZONE®   turbonomic   CloudEndure®   Zerto   Corent   intigua

stiim   ATTUNITY   DATOMETRY   MORPHIS   Ispirer   Informatica   QuerySurge

Secure & Manage Workloads

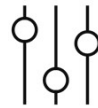**Built-in, intelligent services for Azure and on-premises workloads**

NEW

Governance

Proactively apply policies and optimize cloud spend

Security

Industry leading Security with Advanced Threat Protection

Monitoring

Deep operational insights with rich intelligence

Resiliency

High availability and protection for VMs, apps and data

Automate

Powerful scripting, configuration and update management

Turn on security, backup, and monitoring for every migrated VM

Optimize Migrated Resources

- Azure Cost Management: Unified experience to optimize cloud spends, built-in best practice recommendations

- Use Azure Hybrid Benefit and Azure Reserved Instances during or after migration

- Modernize for longer term value
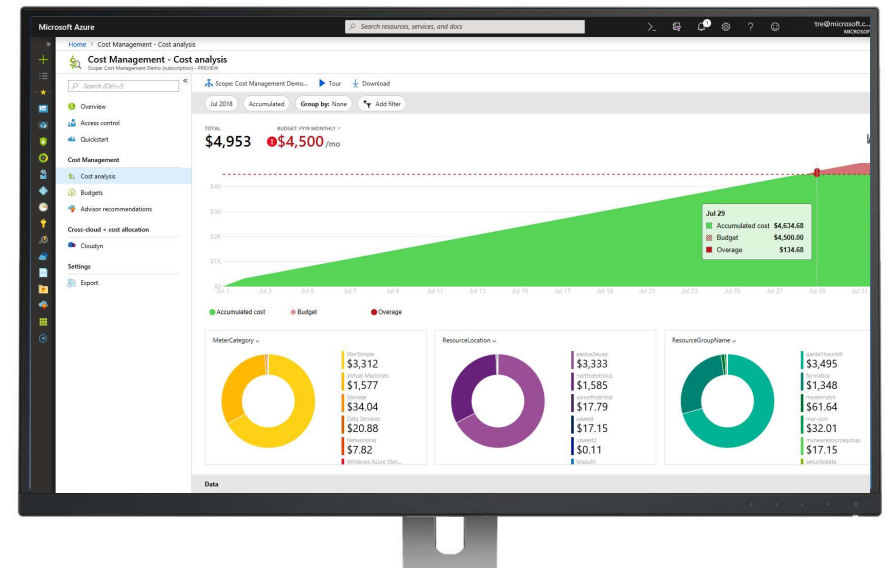
Azure migration scenario guidance

Fourteen detailed scenario guides on the Azure migration experience (using Contoso, a fictitious company)

Azure Subscriptions, Network, Azure AD & Standards (AzureSetup.exe)

POC walkthrough of Windows Server/SQL Server and LAMP Apps

Business Drivers, Migration Goals & Technical Walkthroughs

http://aka.ms/contoso-migration
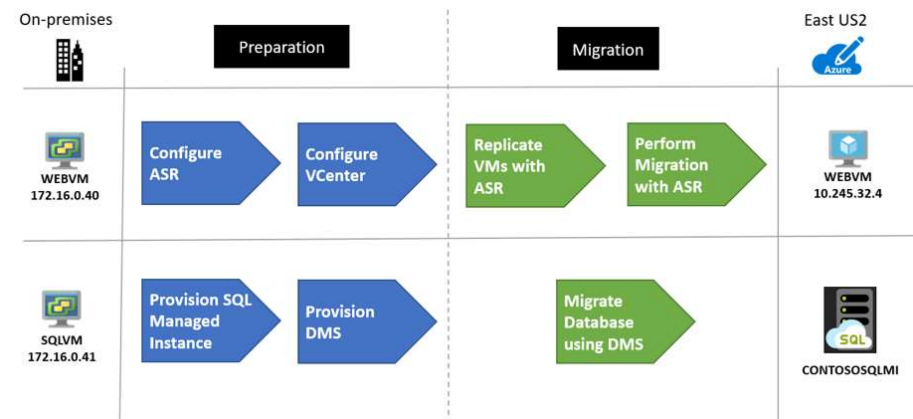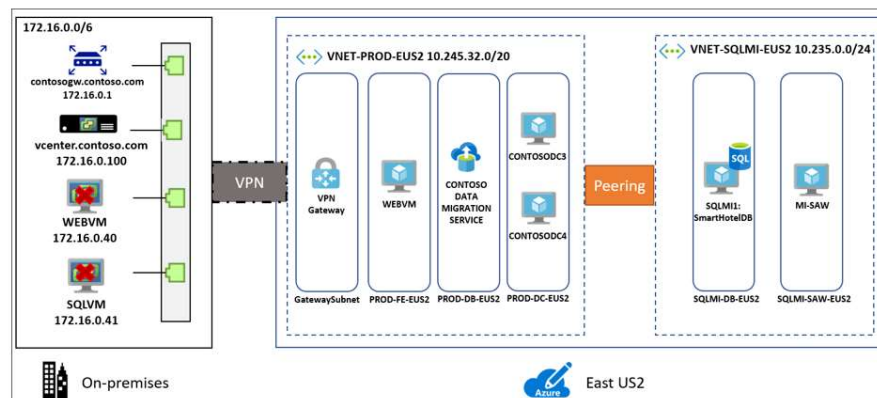
Foundational best practices

People

- Drive org culture change
- Set up migration center of excellence (CoE)
- Ensure right stakeholders are engaged
- Provide learning paths & certifications
- Use skilled migration partners

Planning & process

- Build biz case w/ exec sponsorship
- Plan migration strategies
- Start small: Do a pilot
- Track migration scorecard
- Track and optimize cloud spends

Technology

- Choose the right tools for the job
- Govern Azure environments & resources
- Extend networking/identity to Azure
- Establish robust security foundation
- Use integrated security/management tools

Set up migration Center of Excellence (CoE)
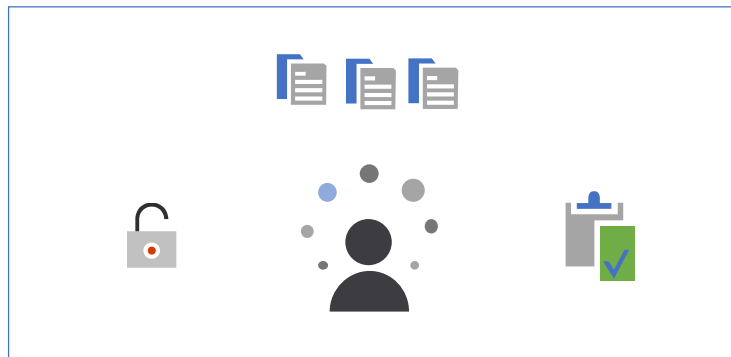
CoE: App portfolio evaluation, program management office, shared services (e.g., networking, security, governance)
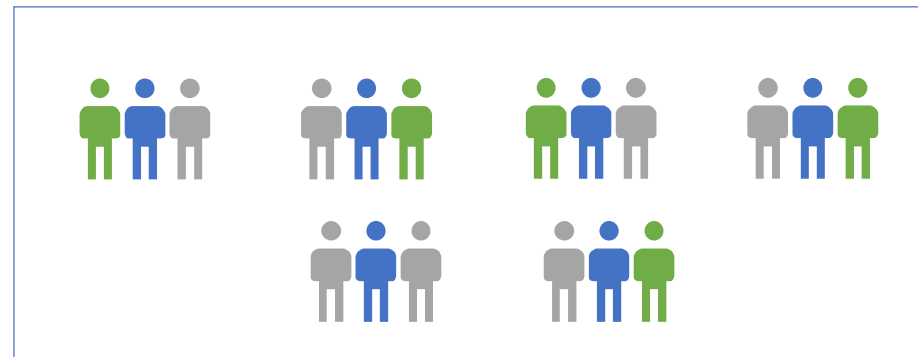
Migration teams: Organized by LOB (sales, marketing, HR, finance etc.), migration strategy (rehost, refactor etc.), or workload (Windows, Linux, etc.)

Plan migration strategies

On-premises	App	Migration & Modernization			Cloud-native	SaaS
	Data	Rehost	Refactor	Rearchitect	Rebuild/New	Replace
	Infrastructure					

**IT oriented migration triggers
(timeline driven)**

Rehost

**App oriented migration triggers
(business priority driven)**

Refactor | Rearchitect | Rebuild
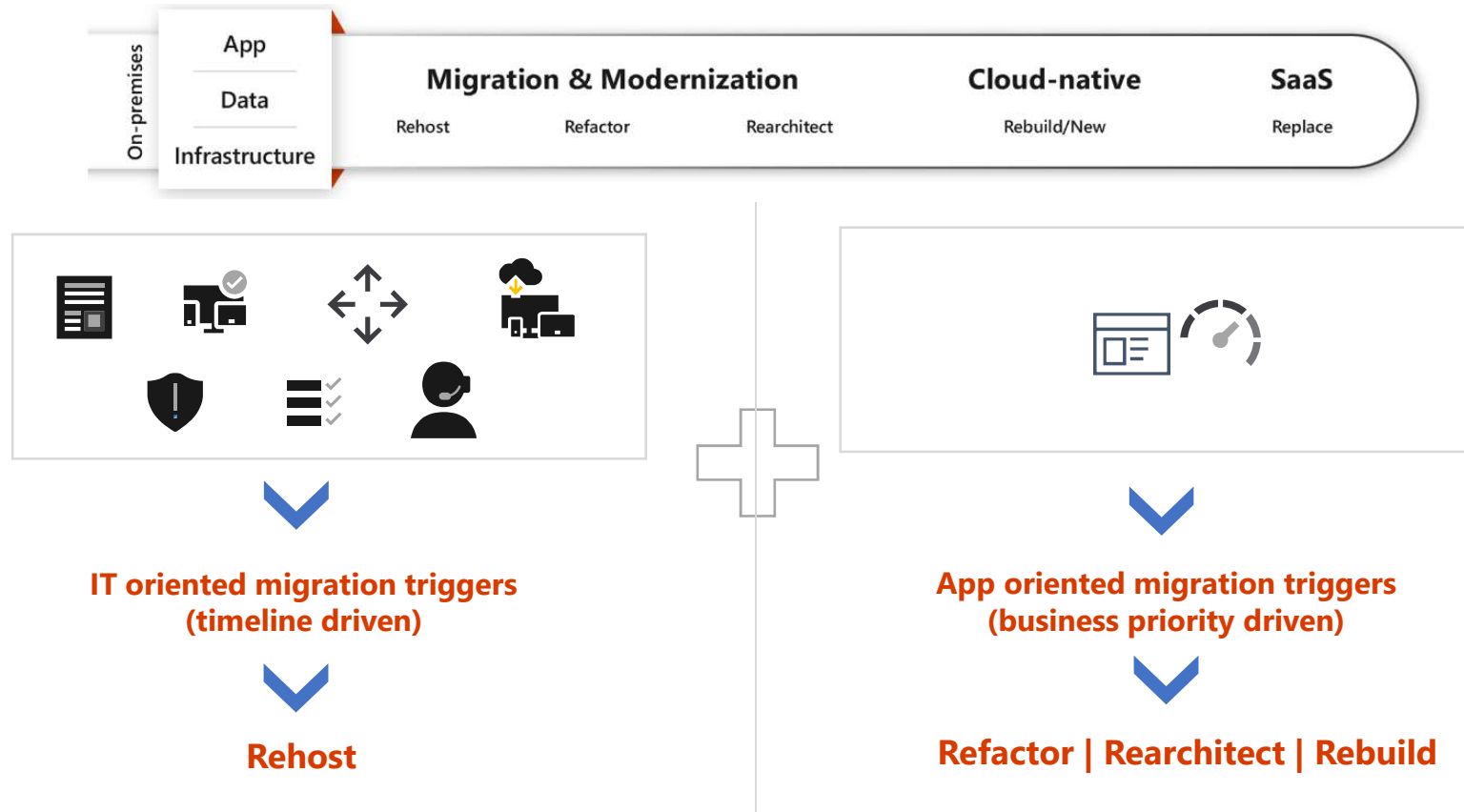
Start with migration pilot: Pick lower complexity, less risky workloads

Track migration scorecard

LoB	By phase			By migration strategy				
	Discovered	Assessed	Migrated	Rehost	Refactor	Rearchitect	Rebuild	Replace
Sales	122	80	15	7	4	1		3
Marketing	42	25	5	3				2
HR	50	40	25	15		2		8
Finance	40	25	13	10				3

Best practices by phase

Learnings from at-scale Azure migrations

🔍 Assess	➤ Migrate	🗘 Optimize	⚙ Secure & Manage

Assess

Build an Inventory of apps, databases, & VMs

Update or create service catalog with the Business, and beware departmental apps, databases & reports

Look for good POC candidates

Assign priority, complexity & risk to all items which will be migrated to Azure

Beware of higher security apps and those which integrate with firewalls

"Redesign" every app for Azure!

Migrate

Choose the right tool for the job, and be flexible

Select more powerful sizes of Azure resources during the migration and scale down (saves time during migrations)

Involve the Business at every step, identify a contact for each group and demand testers and sign-off (no Monday madness)

Perform non-disruptive testing and performance testing prior to cutovers

Start with Easy, then move on to the hard

Optimize

Azure Cost Management is a critical tool

Leverage Azure Hybrid Use Benefit for Windows and SQL along with Reserved Instances to save up to 80%

Scripts and Azure Automation should be used to shutdown VMs that aren't needed 24x7

Watch out for migration left overs like onetime backups sitting in Blob Storage or VHDs and Snapshots that aren't being used

Secure & Manage

Migration isn't complete until it is fully operatized without monitoring, backup, failover and security configured

Partner solutions can be extended to the cloud if you use a third party backup, it will most likely work with Azure

Leverage Azure Automation or tools like Terraform, Chef & Ansible

Leverage Platform tools such as Azure Security Center, Log Analytics and Application Insights

Govern Azure environments and resources

Governance is key as you embark on large scale migration

- Standardize on Azure environments as you plan migration

    Maintain velocity with needed control
    Avoid resource and subscription sprawl

- Add several environments with single click deployments as you scale migration

- Deploy compliant environments using built in templates for greater migration velocity (e.g., FedRamp, GDPR)
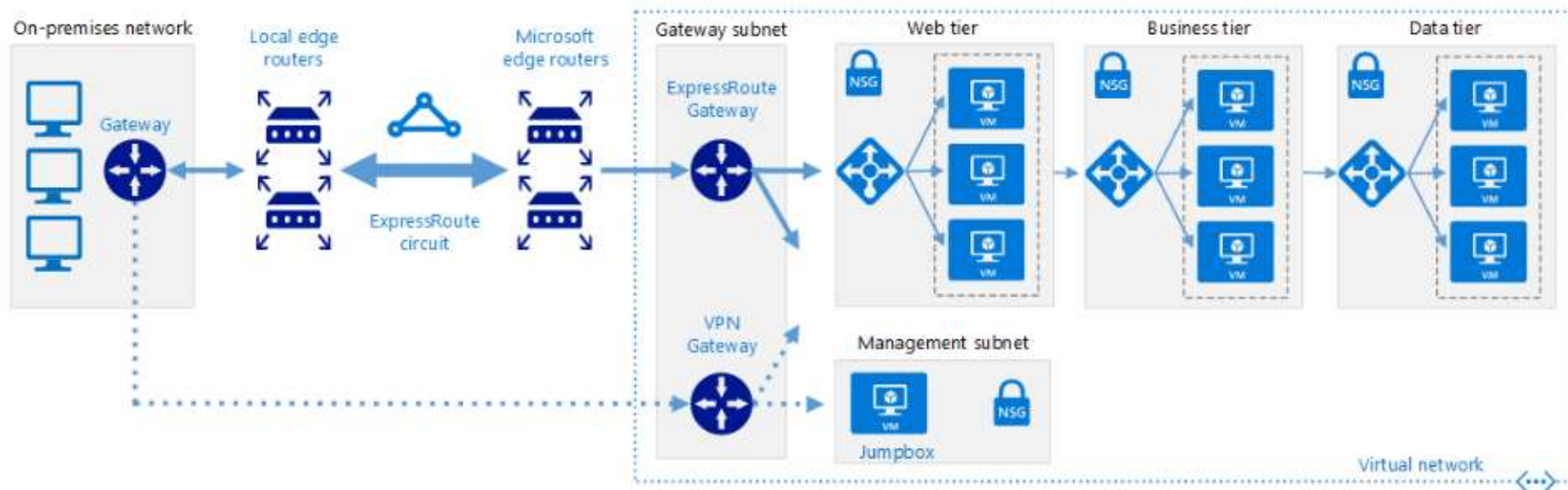
Azure Blueprint

Subscriptions | Resources | Policies | RBAC

Extending Networking to Azure

Create a Hybrid Network using ExpressRoute with VPN failover

Leverage Partner solutions for firewalls and routers to deploy DMZ

Public and private IP traffic crosses ER circuit, but private only via VPN

Extending Identity to Azure

Synchronize on-premises AD with Azure AD using AD Connect
Provides single sign on access to migrated apps and Internet SaaS apps
Other implementations possible including ADFS
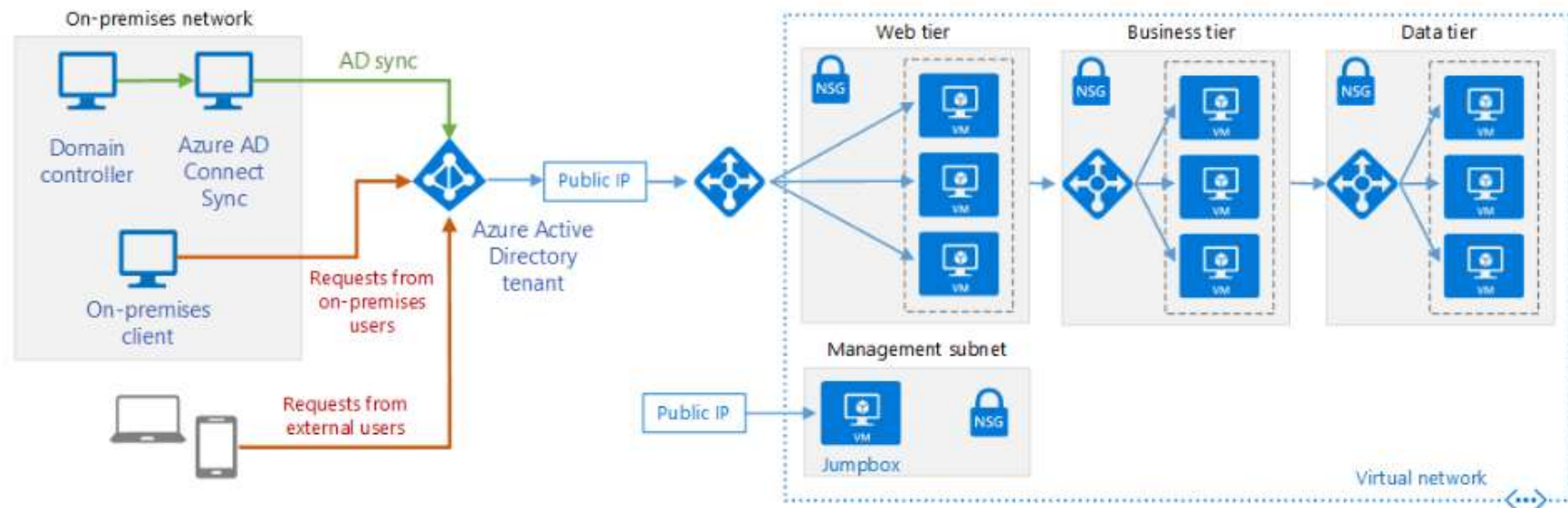
For low latency access to hybrid apps: Extend on-premises AD to Azure IaaS, purpose built connectivity

Tips & Tricks

What region to choose?

Region closest to HQ
Speed test http://www.azurespeed.com/

Multi region
Dependent on customer locale and workload

Migration and DR
Targets in different regions

Cost Evaluation

- Create multiple Assessments based on workload
  - Region pricing
  - Reserved instance pricing
  - As on-premises or Performance-based history
  - Include or Exclude VM series
  - VM uptime
  - Azure Hybrid Benefit

- TCO - https://azure.com/tco

Build the Infrastructure

Create a Vnet /16 CIDR
Subnets /24 CIDR

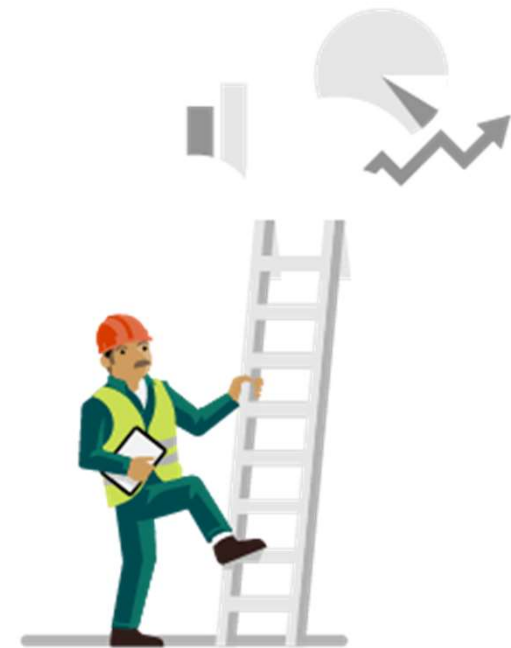**Network security group**
ACL on subnet and/or Network Interface

S2S vpn and/or express route
Ikev2, route or policy based
Many 3rd party options, need Route Table

Domain Controller
Azure AD Connect

PoC / TestDev

Sandbox

Build and destroy when done
Learn a new skillset
ARM Template, disk image creation, Desired State

ASR for Proof of Concept

Disaster Recovery and Failback

Commit workload to Azure

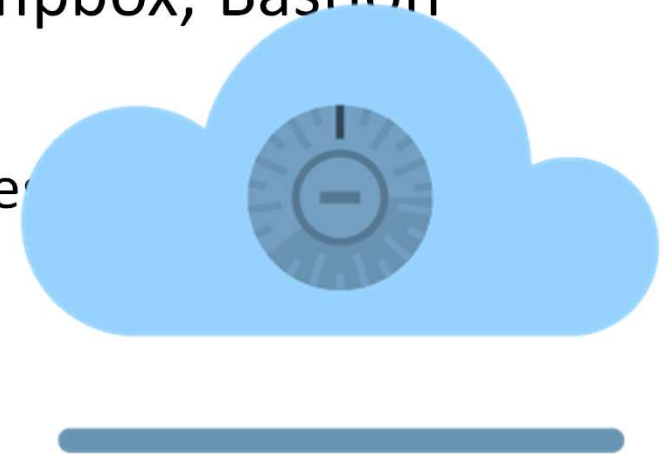## Don't reinvent the wheel

GitHub Templates
Azure QuickStart Templates
Template deployment from Azure portal

Build Defense

- Remove external IP

- Utilize internal IP through VPN, Jumpbox, Bastion

- RBAC – role-based access control
  - Management groups and custom roles

- Policy

- MFA

- Security Center
 - Application whitelisting
  - Just in time Access

Keep in mind

- Backup and DR is still needed
  - 1st party or 3rd party
- Recovery Services Vault- create first to specify LRS or GRS
- HA
  - Availability sets, Availability Zones
  - Scale Horizontal or Vertical
  - Managed disk Premium Disks – SSD

![Sinergija18 Digital breakthrough]

Ocenite predavanje kako bismo izabrali najboljeg predavača na Sinergiji 18!

Popunite konferencijsku anketu i učestvujte u velikoj nagradnoj igri!
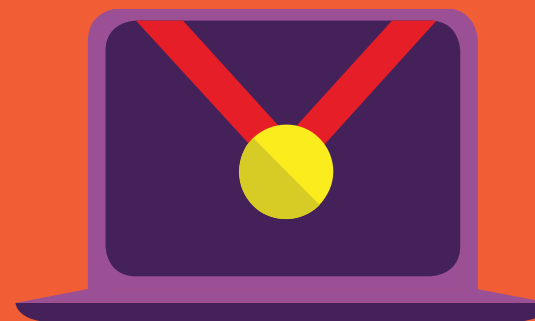
Thank you

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