sol-tec
CLOUD EMPOWERED SOLUTIONS

PUBSEC –Your Cloud Journey & Lessons Learnt

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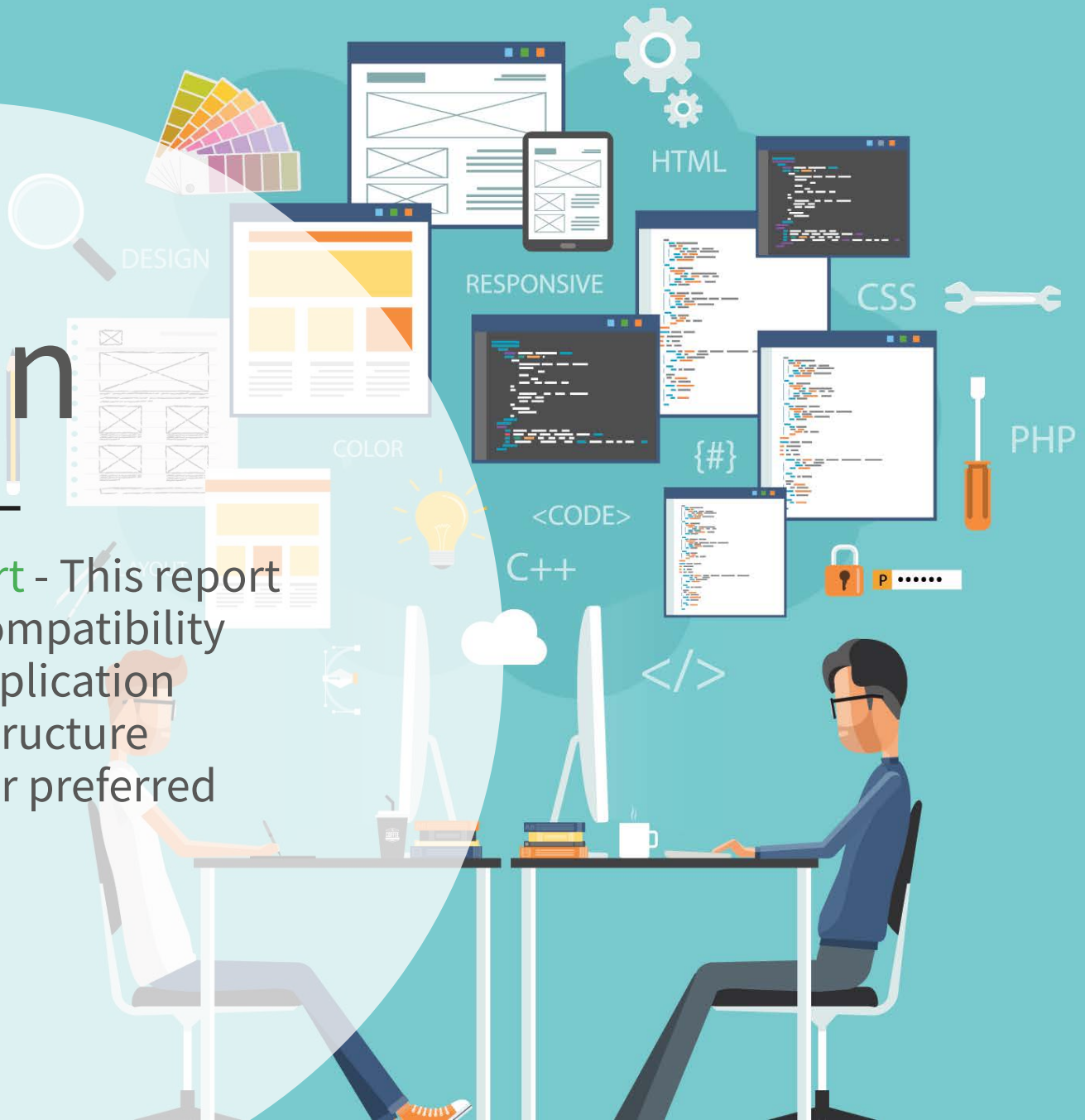
PUBSEC

Our PUBSEC suite of services offers choice and flexibility – each part of the process can be accessed as a discrete one-off engagement or as part of a turnkey solution.

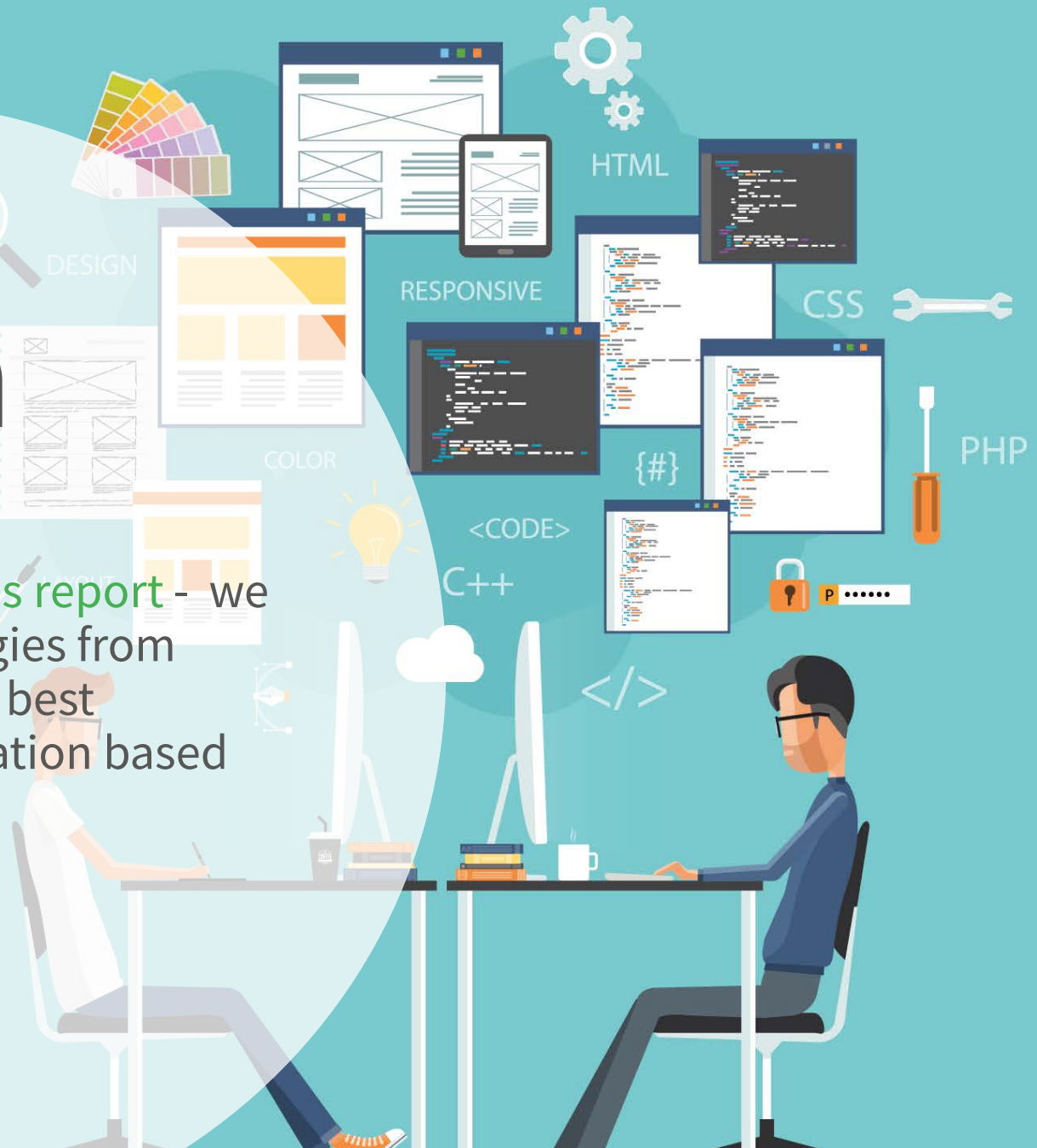
Plan

Cloud feasibility report - This report provides a detailed compatibility analysis of all your application workloads and infrastructure components with your preferred Clouds as a heatmap.



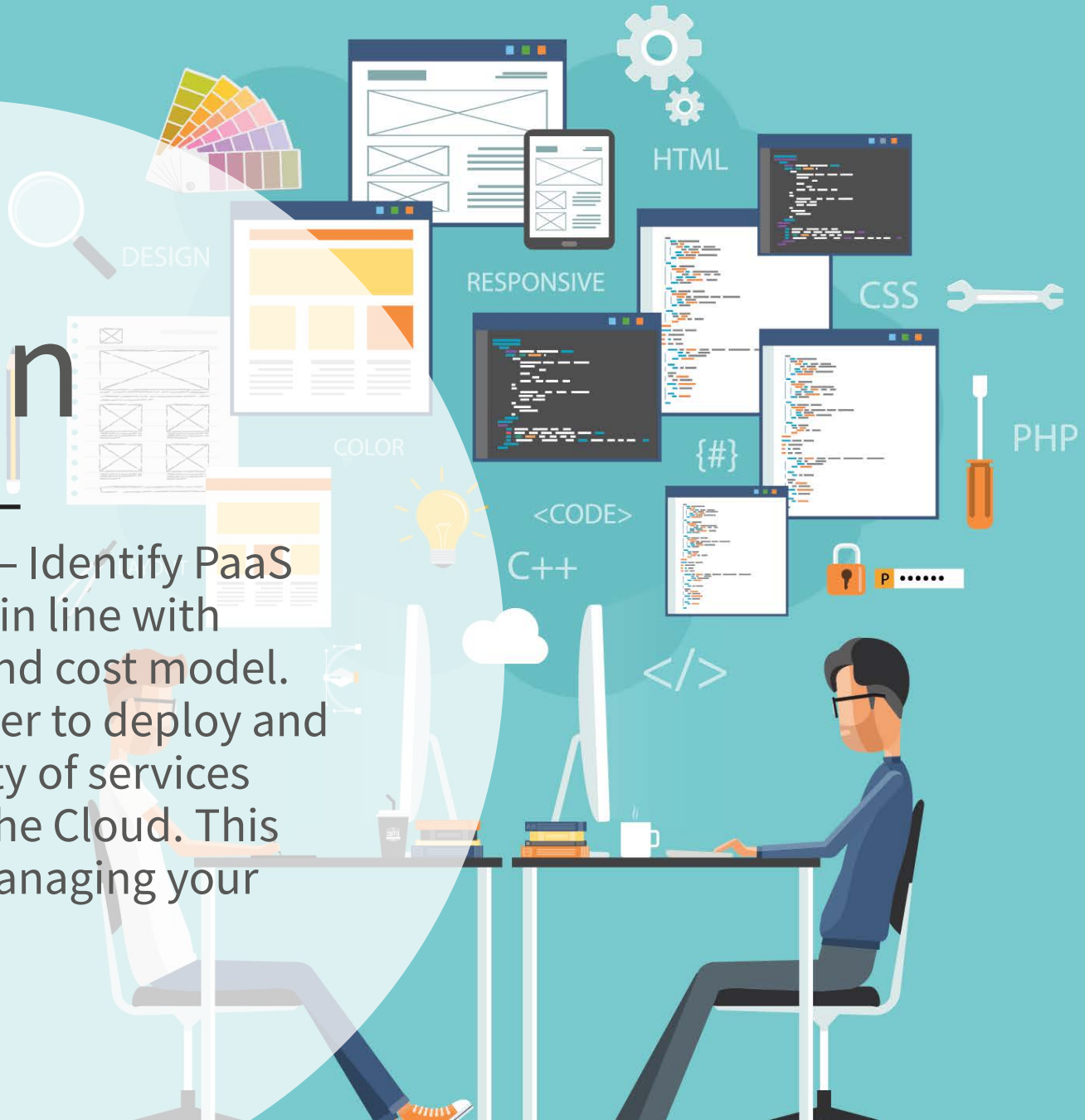
Plan

Cloud operations analysis report - we suggest different topologies from which you can select the best topology for your application based on your business needs.



Plan

PaaS advisory report – Identify PaaS options and evaluate in line with business objectives and cost model. PaaS Services are faster to deploy and provide the availability of services and maintenance in the Cloud. This reduces the cost of managing your own services in Cloud



Understand

Cost Modelling - remove element of surprise by modelling all the factors related to cost and operations planning. We customize the migration cost for each Cloud provider and compare the cost between various Cloud Providers. It helps you factor in various operations and business considerations which aids you in planning your Cloud migration strategy efficiently.

Understand

Re-Architecting Suggestions - identify deployment architectures based on the application's current architecture for effective Cloud deployment and operations. The suggested architectures can transform the application into elastically scalable, performable, backup-enabled, highly available, clustered for high reliability and cost effectiveness.

Build

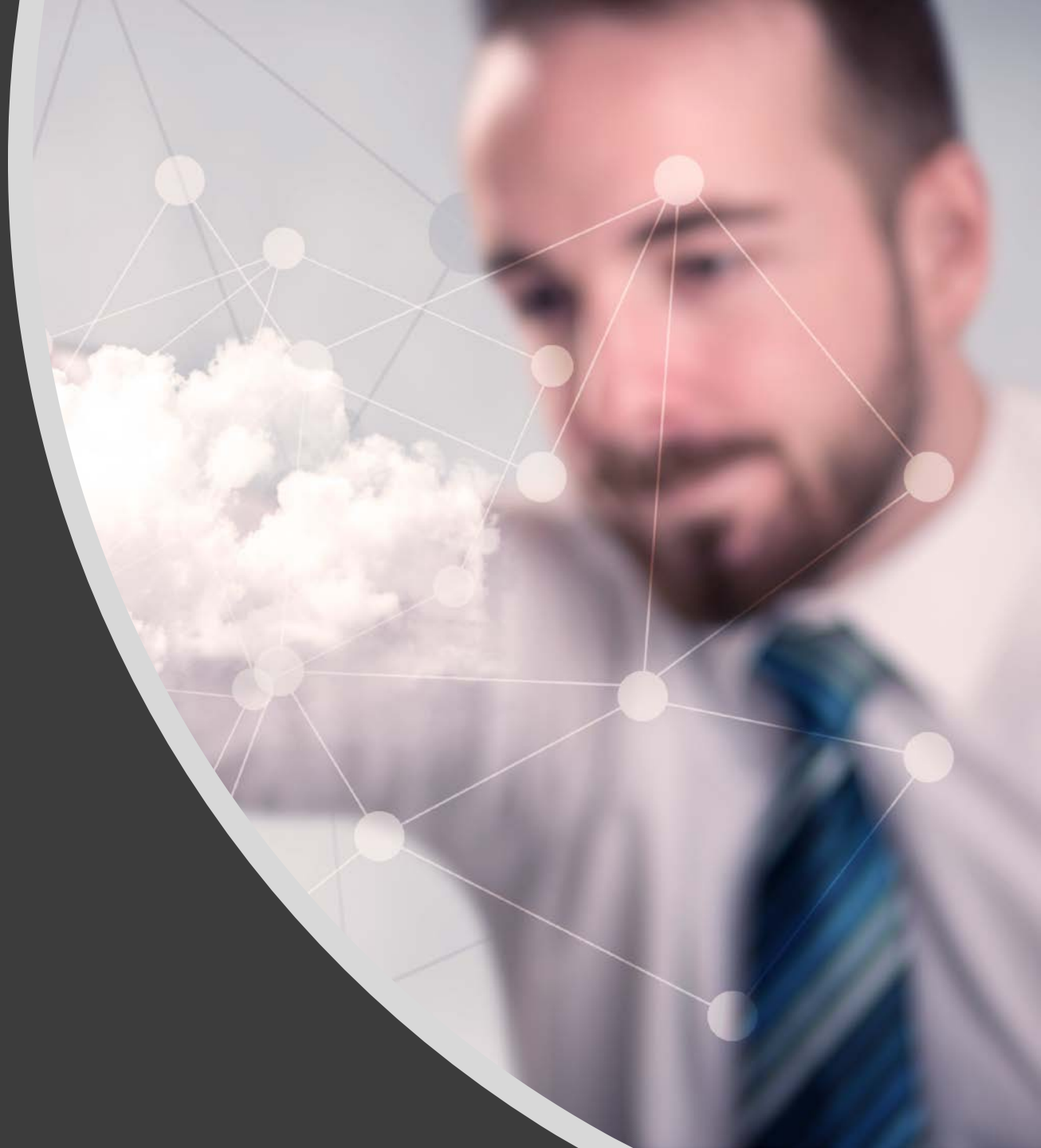
Azure Virtual Datacentre– Platform for application migration or new application deployment. Built alongside Plan and Understand phases. Cost-effective, secure, easy to manage and maintain.


“A key step of any digital transformation journey is the creation of foundations from which new services can be implemented”

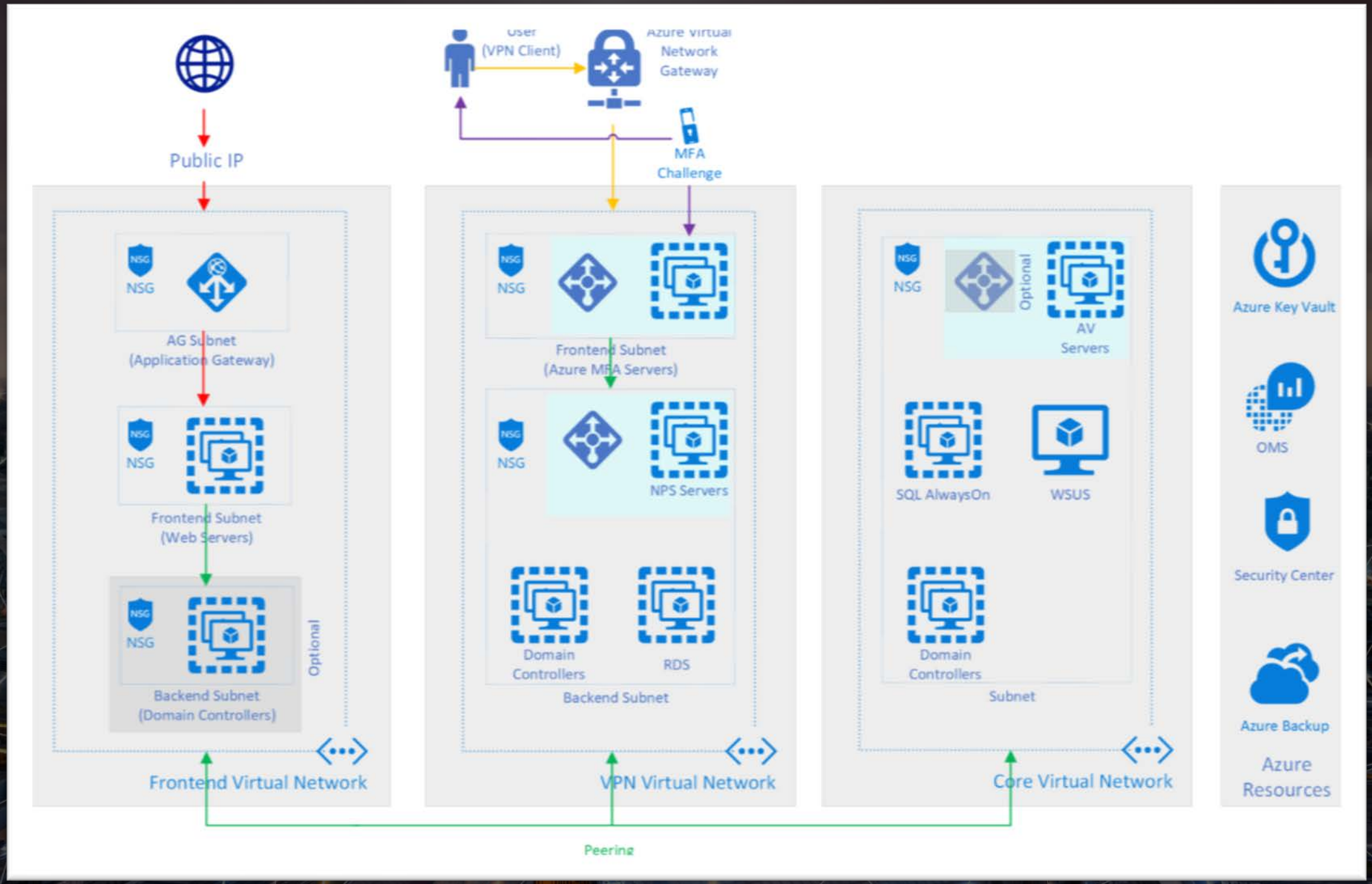
Virtual Data Centre

Component Parts

- Security & Compliance
- Role Based Access Control (IAM)
- Subscription management
- Networking
- Automation
- Billing
- SLA & Monitoring
- Backup & Recovery
- Migration



Virtual Datacentre Blueprint



Build - Common Principles

- Aligned with Microsoft Published Sector specific blueprints
- VM Disks encrypted by default
- Secrets and keys stored in Azure KeyVault
- All VM's added to a recovery service vault and backup policy
- Managed disks used for all VMs
- Separate VNets for management operations and business operations. Separate VNets and subnets allow traffic management, including traffic ingress and egress restrictions, by using NSGs between network segments.
- RBAC applied to control access to resources
- Components built to be Highly Available (HA) by default
- Uses Azure Application Gateway as the internet facing gateway and load balancer. Option for customers to use a third party network virtual appliances for additional layers of networking security or as an alternative to the Azure Application Gateway.

Management & Monitoring Features

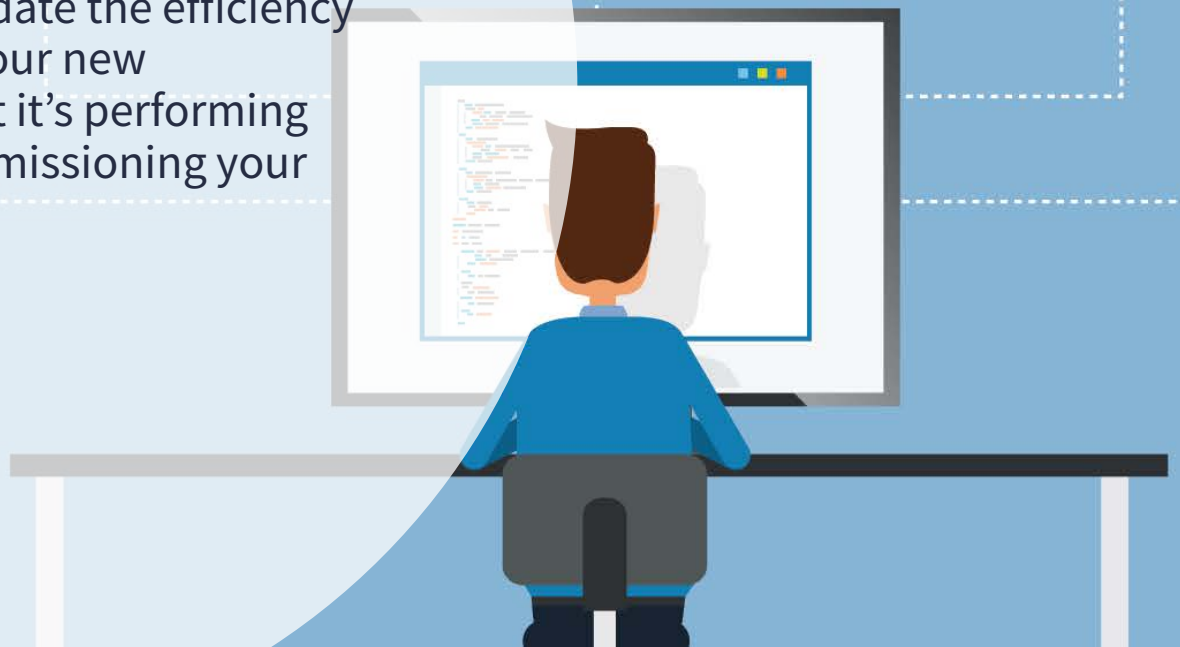
- All machines enrolled into Azure Security Centre
- Sol-tec provide you with an OMS dashboard with solutions available to
  - Monitor and analyse backup vaults
  - Monitor and analyse Windows and Linux server performance metrics
  - Ongoing Active Directory health check
  - View status of antivirus and antimalware scans supports Symantec Endpoint Protection and Trend Micro Deep Security
  - Logging of Azure Activity Log is a log that offers insights into the operations performed on resources in subscriptions
  - Change tracking for Windows and Linux software, Windows and Linux files, Windows registry keys, Windows services, and Linux daemons
  - monitor network performance between various points in the network infrastructure.
  - Service map to shows connections between servers, processes, and ports across any TCP-connected architecture

Switch

VM Migration – Migrate entire VMs to Azure with Corent (Agent based) or RiverMeadow (Agentless). Our migrations support VMWare, Physical, HyperV and between clouds. If you have a 3rd party provider, we can migrate without Hypervisor access.

Early Life Support

Early Life Support– We validate the efficiency and cost-effectiveness of your new environment, ensuring that it’s performing as promised before decommissioning your old infrastructure.

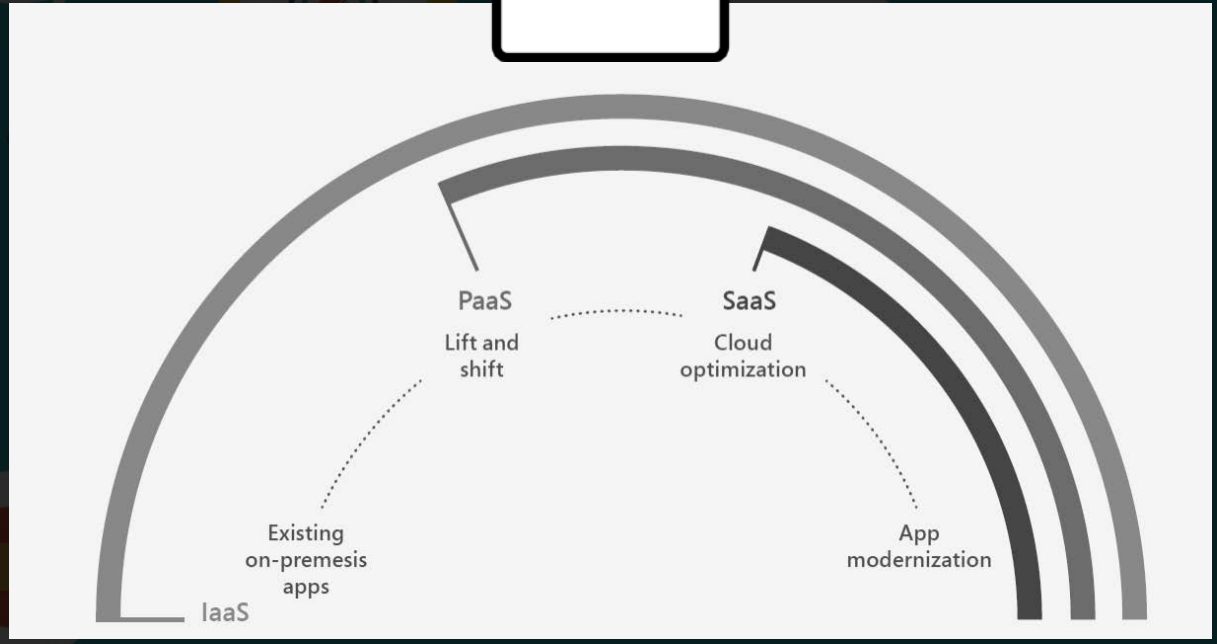


Continuity

Continuity–Full orchestration and support services that keep your new public cloud datacentre compliant, secure and operational.

Cloud Journey evolution

Where you begin depends upon the complexity of the workload



Migration options

Implementation	Tactic		Security & Management
Public cloud off-premises	Cloud-born	Azure PaaS	Azure security + operations management
	Lift & Modernize	Azure Container Service	Azure security + operations management
	Lift & Shift	Azure IaaS	Azure security + operations management
	Commodity	SaaS: Microsoft Dynamics, Office 365, Visual Studio Team Services	Enterprise Mobility Suite
Cloud on-premises	Cloud-born	Azure Stack	Azure security + operations management
	Leave It Alone	Operating system upgrade	System Center + Azure security + operations management

Not one size fits all....

A T-Shirt is a key abstraction to identity migration efforts and complexity of business applications and platforms.

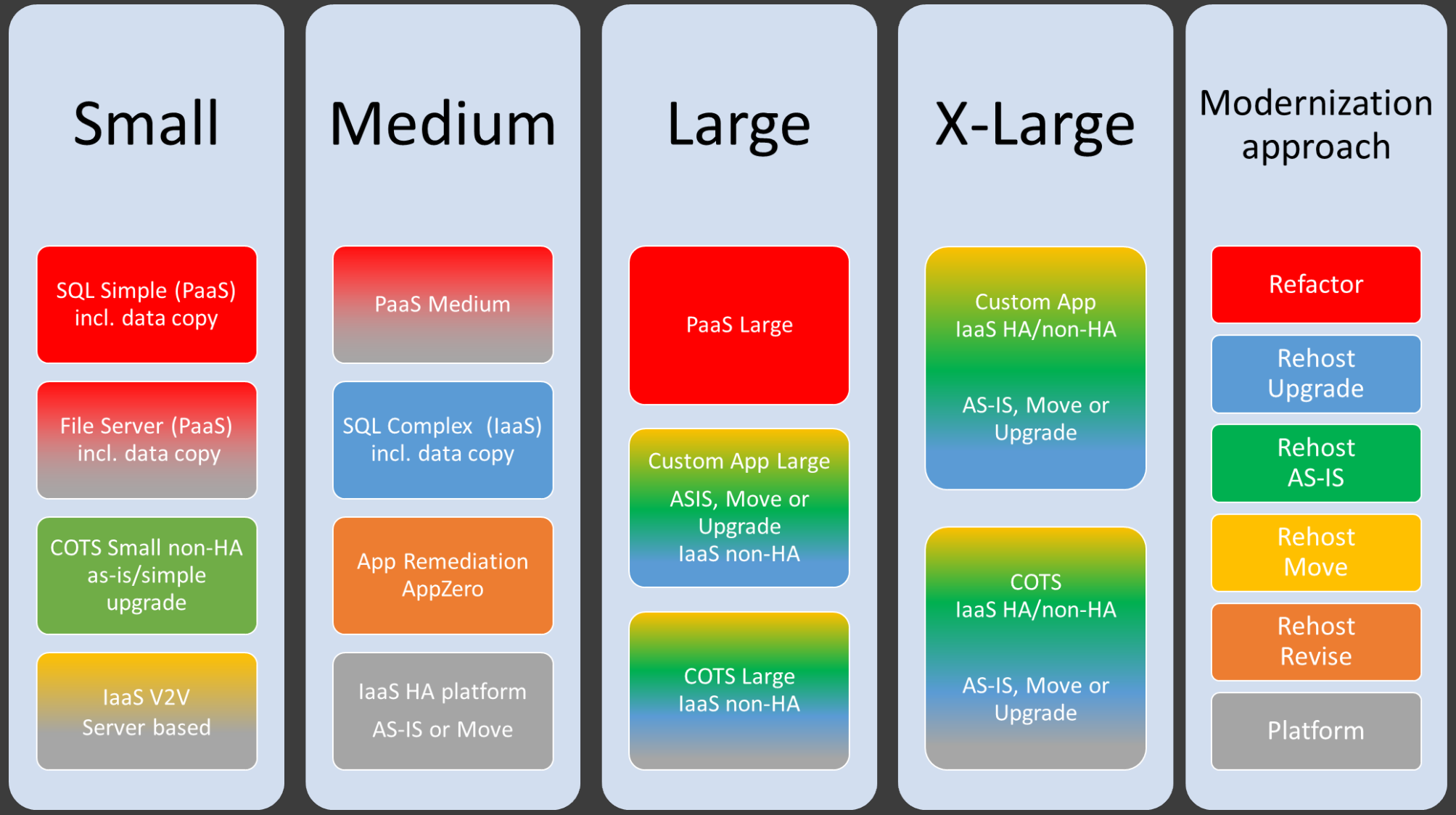
Small is applied for simple application or platform, typically tool-based migration or implementation

Medium is applied for application or platform, that requires limited custom interaction or currently run on Silver/Gold servers.

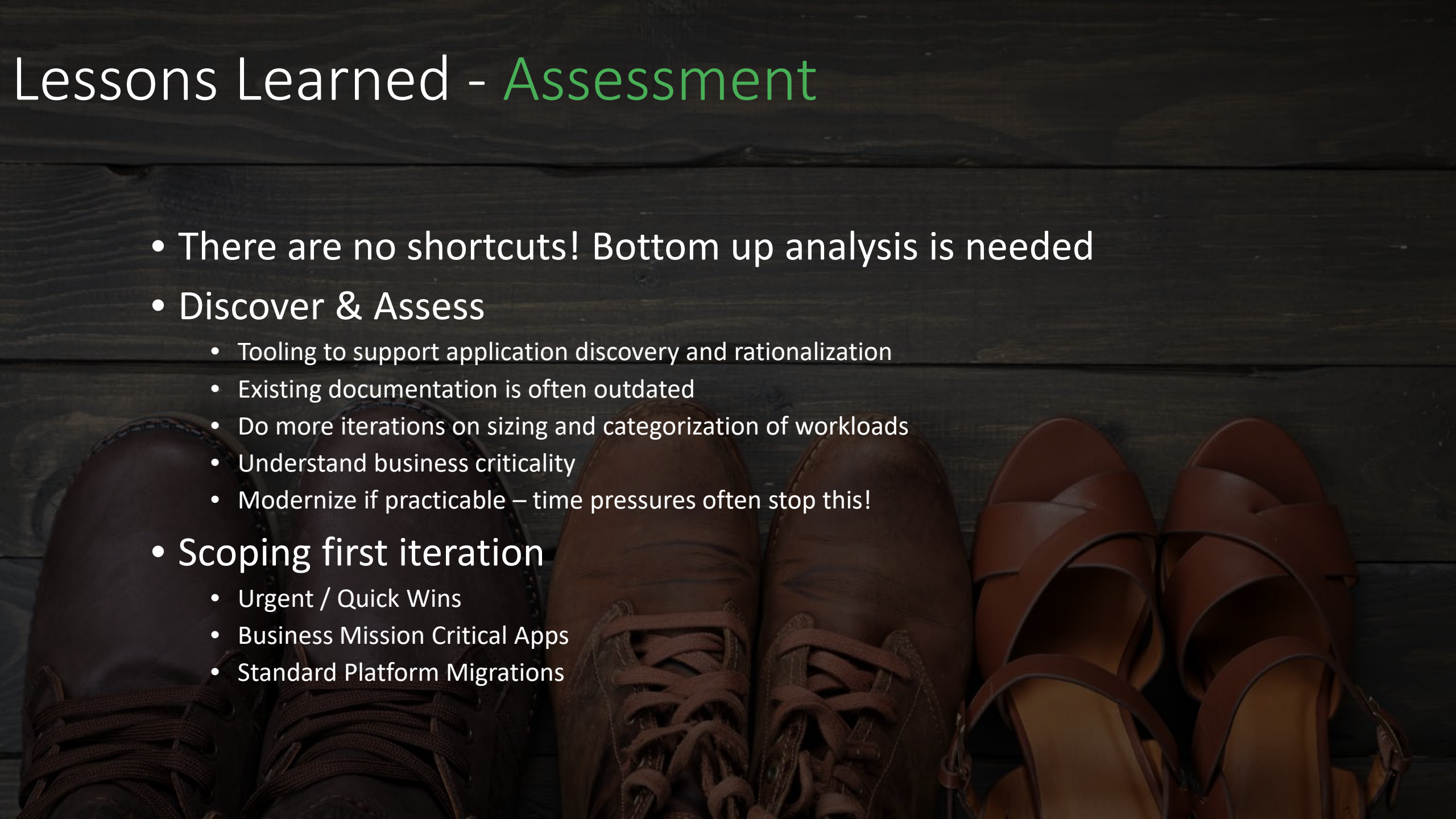
Large is applied for complex application or platform that requires significant custom interaction as well as specific knowledge about the customer, their business and/or requirements.

Extra-large is applied for very complex custom multi-tier application or highly customized COTS application with high business criticality, not supported on the current platform; e.g. currently running WS2003.

List of Offerings – The Shopping List



Lessons Learned - Assessment



- There are no shortcuts! Bottom up analysis is needed
- Discover & Assess
  - Tooling to support application discovery and rationalization
  - Existing documentation is often outdated
  - Do more iterations on sizing and categorization of workloads
  - Understand business criticality
  - Modernize if practicable – time pressures often stop this!
- Scoping first iteration
  - Urgent / Quick Wins
  - Business Mission Critical Apps
  - Standard Platform Migrations

Lessons Learned - Process

- Follow a lean swim lane process / this is not a small "project"
- Automate and support the process with tooling
- Continuously align expectations and resources with stakeholders
- Group application and platform in separate waves
- Group regional applications in the same wave with dedicated teams

Lessons Learned – Swim Lanes

Plan

- Collect all artifacts before starting
- Get all the licenses needed including software installations
- Get cut-over date firmed early and plan accordingly

Validation

- PaaS assessment and decision point
- Actively include group security for approvals
- Actively include group architecture for blueprint alignment, review and ownership

Migration

- Performance baselining must be performed
- Careful planning of UAT to align business resources need for testing
- Make sure to test app / OS scenarios

Cut-over

- Non functional testing is important
- 2-3 application cut-overs at the same time is max
- Plan for work during weekends

Hypercare

- Hypercare is hard!
- Dedicated team is needed
- Determine SLA needed, e.g. 24/7 or 8/5
- Daily calls and hypercare tracker for issues/problems

Lessons Learned – Business Applications

- Integration, Integration, Integration.
- External facing applications require much work.
- High availability is needed for all applications that require SLA.
- For COTS applications work with vendor to determine supportability and get them involved. High availability for COTS applications can be complex.
- Watch out for client applications, like Microsoft Office
- Modernize application, e.g. version upgrades

Lessons Learned – Platforms

- Migrating turnkey middleware platforms
  - No shared storage
  - 3rd Party platforms like IBM MQ and Citrix require domain specific skills
  - Consolidate from many to few
- SQL Server on IaaS
  - High performance SQL workloads on IaaS
  - Always use Windows Server 2016 for performance
  - Storage Pools for disk performance
  - Always add LUNs for data, log and backup
  - Add more disks for better IOPS
  - Use DS series and premium storage
- Migrating file shares
  - Use PaaS if requirements allow it
  - Make sure end users can work using same connections and names as before
  - Leverage DFS
  - Performance delta syncs of data
  - File servers often also run other workloads - make sure to look for other services, like print

Lessons Learned - IaaS

- PaaS over IaaS
- Lift and shift is fast / last resort
- Modernization requires significant testing
- Use ARM and IaaS v2 model to allow for role based access
- Use standard marketplace images
- Add your management agents using extensions at provisioning time
- Use reserved IP addresses cloud services when required

Lessons Learned – *Storage*

- Storage performance will vary - try to be resilient
- Be aware of recommended boundaries for storage accounts → Managed Disks
- Make sure you design storage accounts to match the high availability you need
- Premium storage should be default choice
- *Never* use C drive
- Don't try to change temp drive letter D:

Lessons Learned – *Network*

- Use ExpressRoute - make sure you get enough bandwidth
- Choose network breakout locations based on users location and connection hubs in private network
- Get Microsoft peering enabled on ExpressRoute
- Building DMZs and migration of externally facing applications take require special skills!
- Moving data takes time and needs careful planning
- Manage and throttle data migrations so daily operations is not affected by heavy network usage
- Avoid competing heavy data migrations ongoing at the same time

Lessons Learned – PaaS

- Cultural change
- PaaS technical limitations
- Public peering for PaaS
- Ability to support


Q&A - Panel discussion

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ABOUT US

sol-tec helps public sector organisations to transform their service delivery capabilities by achieving their digital transformation goals. With 26 years of sector experience, we understand how changes made to datacentre infrastructure have the power to impact the lives of individual citizens.