Microsoft

Configuration Management and Azure ARM Templates

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Configuration management ensures that the current design and build state of the system is known, good & trusted.
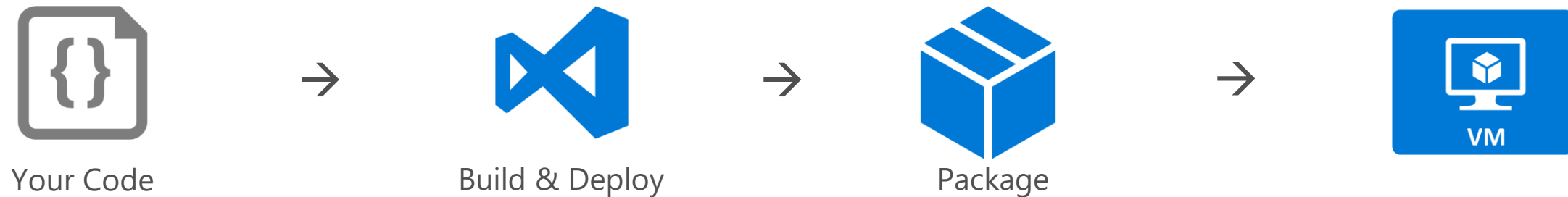
Configuration Management

- A systems engineering process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design, and operational information throughout its life.

Config Mgt + Continuous Deployment

Configuration Management

{ } ... template

\+

Configuration

Deployment

{ } Your Code

→

Build & Deploy

→

Package

→

VM
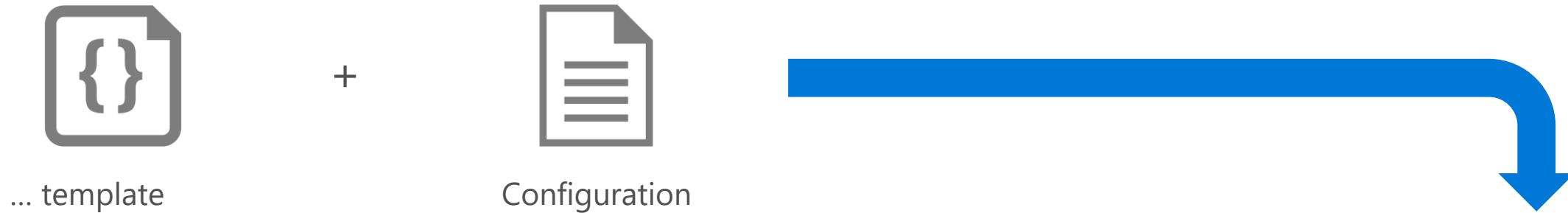
Continuous Deployment

Microsoft

How to achieve Configuration Management

- There are several tools to implement Configuration Management in a DevOps world. What's important is that Developers and Ops Engineers speak the same language (same toolset).
- DSC
- ARM
- Chef
- Puppet

ARM Template – What is it?

- Azure Resource Manager templates are JSON files that define the resources you need to deploy for your solution.
- If you have existing resources and want to get a template for those resources, you can also Export an Azure Resource Manager template from existing resources.
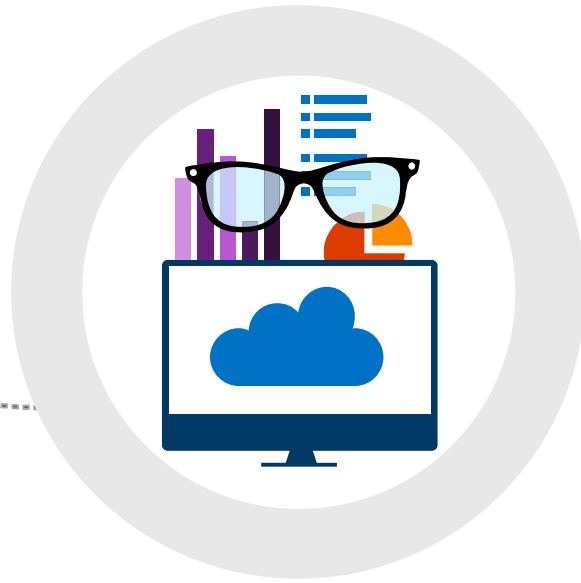
ARM Templates
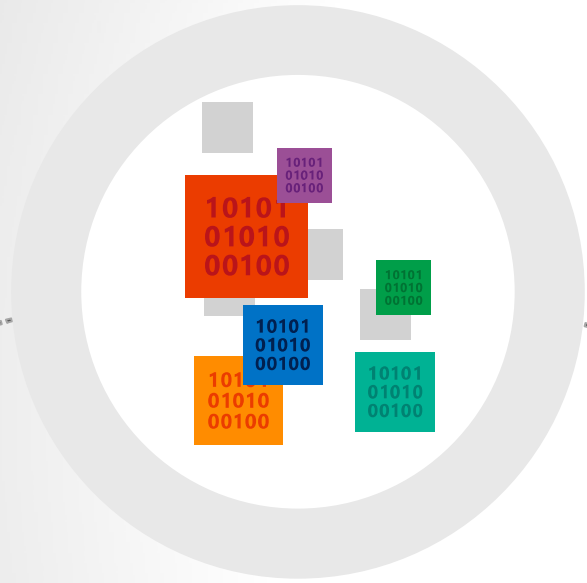
What are ARM templates

- JSON files that describe parameters, variables and resources to deploy in Azure
- Briefly describe parameters and variables

Azure Resource Management Templates allow for the creation of many things in Azure

- VM, EH, ASA, Storage, etc.
- Not all Services support ARM

ARM Templates can do a lot but not everything, for eg:

- Can create a storage account, but not storage containers
- Can create SQL servers, but not tables

Microsoft Azure Stack ⌄ New › Custom › Custom deployment › Edit template

Search resources

New

Browse ›

marketplace

See all

Custom

FEATURED APPS   See all

Template deployment
Customize your template and build
for the cloud

account

ft

wsServer-2012-R2-Datace...
ftWindowsServer

Custom deployment
Deploy from a custom template

* Template
Edit template   ›

* Parameters
Edit parameters   ›

* Subscription
IaaS_Premium_Subs   ›

* Resource group
Select a resource group   ›

Or create new

* Resource group location
local   🔒

☑ Pin to dashboard

Create

Edit template
Edit your Azure Resource Manager template

⬇
Download
template

```
1  {
2      "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTempla
3      "contentVersion": "1.0.0.0",
4      "parameters": {},
5      "resources": []
6  }
```

Save   Discard

ARM JSON Sample

```json
JSON                                    Copy

{
  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
  },
  "variables": {
  },
  "resources": [
    {
      "name": "[concat('storage', uniqueString(resourceGroup().id))]",
      "type": "Microsoft.Storage/storageAccounts",
      "apiVersion": "2016-01-01",
      "sku": {
        "name": "Standard_LRS"
      },
      "kind": "Storage",
      "location": "South Central US",
      "tags": {},
      "properties": {}
    }
  ],
  "outputs": {  }
}
```

ARM Templates for Aerospace and Web Jobs
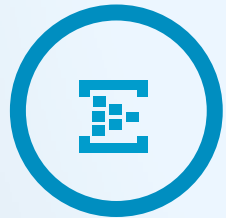
ARM Templates for Aerospace

Creates......

Azure Storage

Azure SQL

Azure Event Hub

Azure Stream Analytics Jobs

Web Jobs

Data Generation Job to push data to Event Hub

1

Set activity periods for ADF

5

Run SQL scripts against Azure SQL (create tables and pre-populate)

3

Creates storage containers and copies files to blob storage (HQL/SQL scripts)
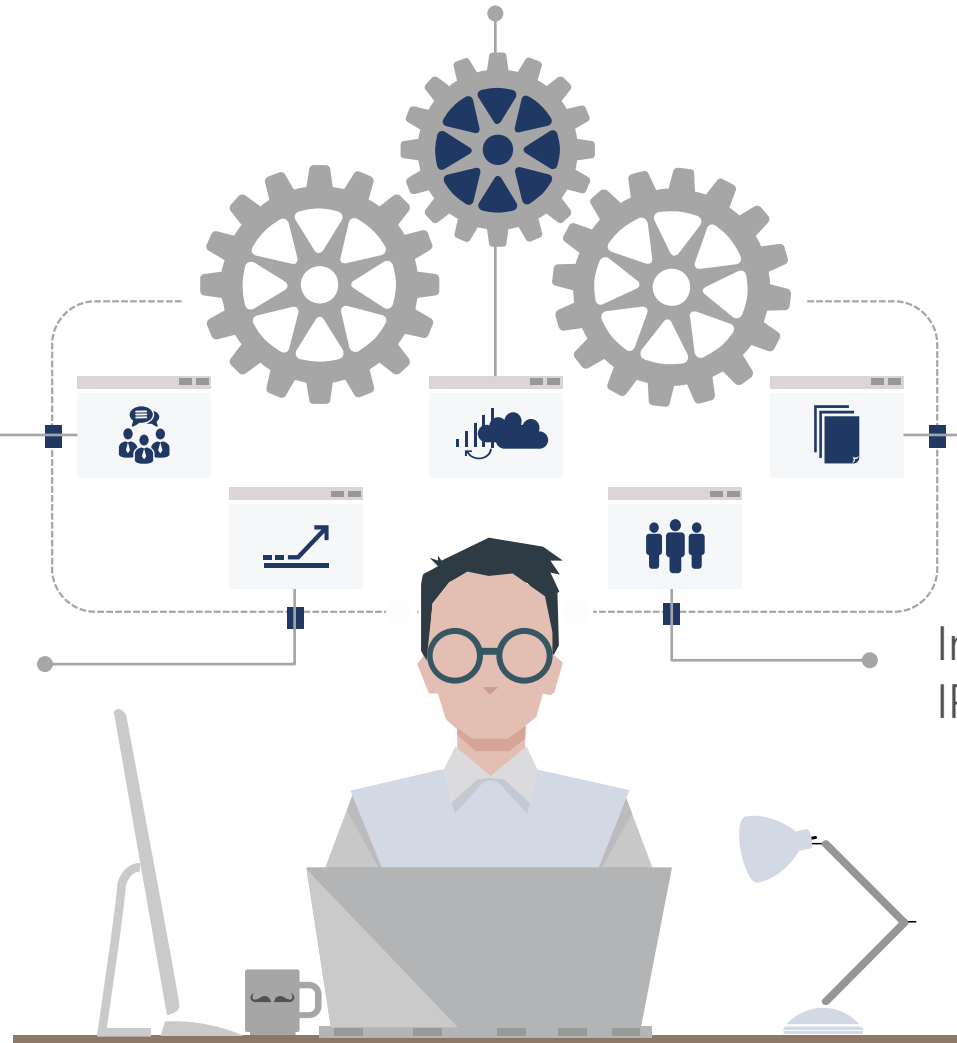
2

Start ASA Jobs

4

Key Takeaways

One Click Deployment with a combination of ARM Templates

Design, Develop and align solution architecture to business challenge(s).

Apply digital assets such as "Predictive Maintenance" for Business and Technical Leaders.

Start with business challenge(s).

Innovate, Hack, & Share IP/Learnings.

Basic ARM Template Demo

Web App, a SQL Database, AutoScale settings, Alert rules, and App Insights
https://azure.microsoft.com/en-us/resources/templates/201-web-app-sql-database/

Web App, SQL DB, Document DB, Azure Search
https://azure.microsoft.com/en-us/resources/templates/301-web-app-sql-docdb-search/

Ubuntu VM Minecraft Server
https://azure.microsoft.com/en-us/resources/templates/minecraft-on-ubuntu/

Deploy to Azure button

To add a deployment button, insert the following markdown to your README.md file:
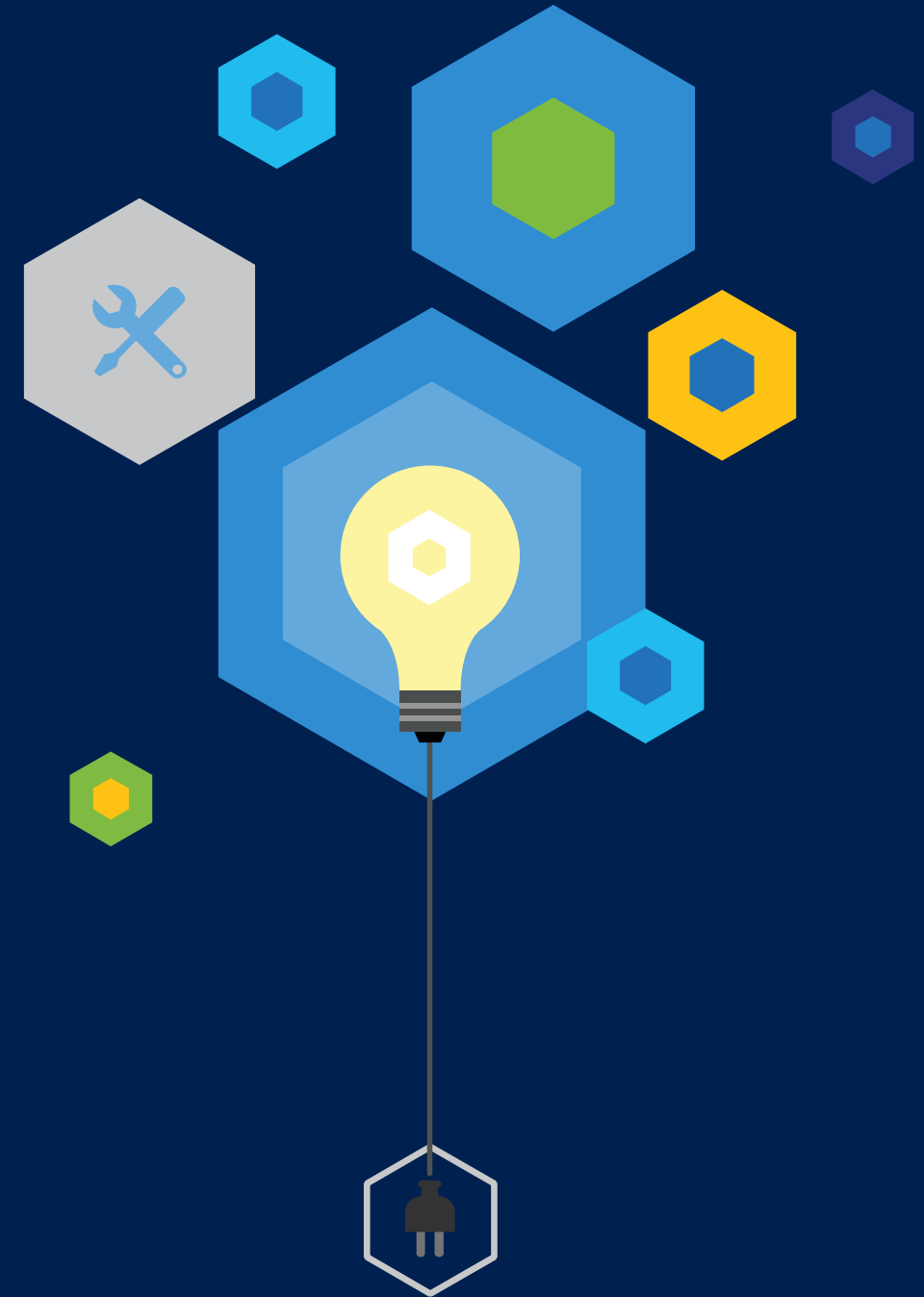```
[![Deploy to Azure](http://azuredeploy.net/deploybutton.png)](https://azuredeploy.net/)
```

The README.md file also supports standard HTML tags, so you can provide your own button icon, or specify that you would like the button to open a new tab. When a user clicks on the button, a "referrer" header is sent to azuredeploy.net which contains the location of the Git repository to deploy from. If you would like to host the button somewhere outside of your Git repository, you can specify a query string in the target URL like so:

```html
<a href="https://azuredeploy.net/?repository=https://github.com/user/repo" target="_blank">
    <img src="http://azuredeploy.net/deploybutton.png"/>
</a>
```

Basic ARM Lab

*Please see lab document

Microsoft

Thank you!