

Configuration Management and Azure ARM Templates

Crystal Tenn

Crystal.Tenn@microsoft.com

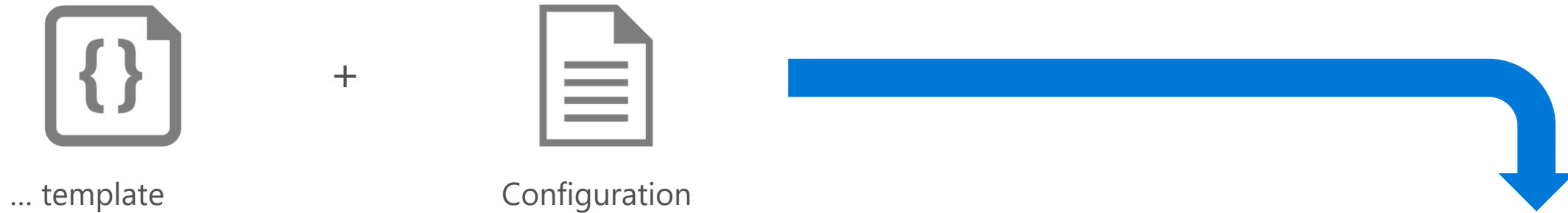
Configuration management ensures that the current design and build state of the system is known, good & trusted.

Configuration Management

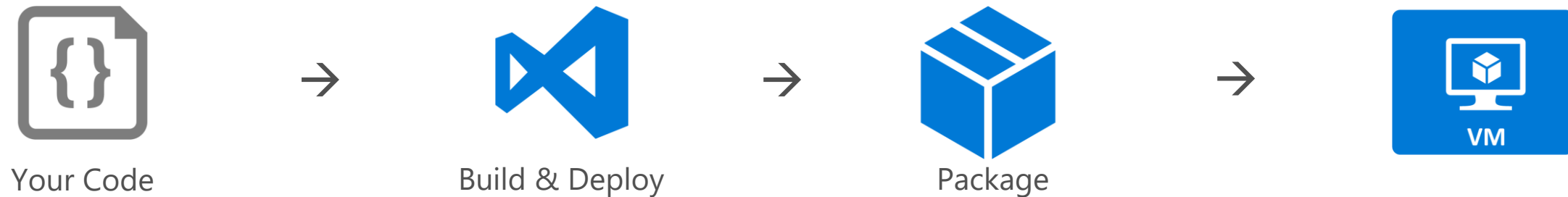
- A systems engineering process for establishing and maintaining **consistency** of a product's performance, **functional**, and **physical** attributes with its requirements, design, and operational information throughout its life.

Config Mgt + Continuous Deployment

Configuration Management



Deployment



Continuous Deployment



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 Template – What is it?

```
{  
  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",  
  "contentVersion": "",  
  "parameters": {  },  
  "variables": {  },  
  "resources": [  ],  
  "outputs": {  }  
}
```

Element name	Required	Description
\$schema	Yes	Location of the JSON schema file that describes the version of the template language. Use the URL shown in the preceding example.
contentVersion	Yes	Version of the template (such as 1.0.0.0). You can provide any value for this element. When deploying resources using the template, this value can be used to make sure that the right template is being used.
parameters	No	Values that are provided when deployment is executed to customize resource deployment.
variables	No	Values that are used as JSON fragments in the template to simplify template language expressions.
resources	Yes	Resource types that are deployed or updated in a resource group.
outputs	No	Values that are returned after deployment.

ARM JSON Sample

JSON

 Copy

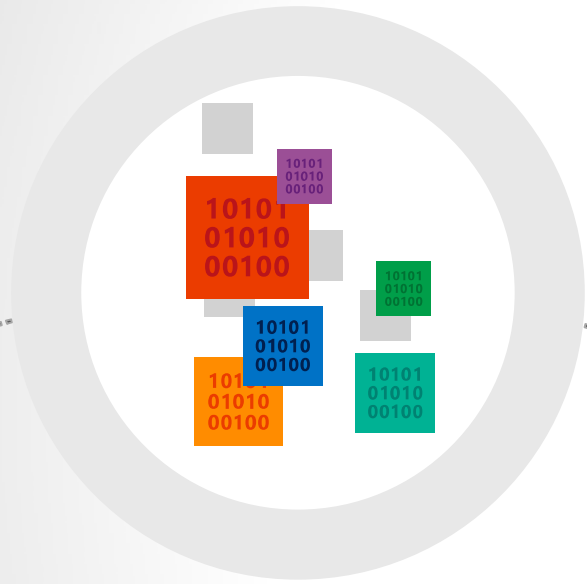
```
{
  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
  },
  "variables": {
  },
  "resources": [
    {
      "name": "[concat('storage', uniqueString(resourceGroup().id))]",
      "type": "Microsoft.Storage/storageAccounts",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


ARM Template – What is it?

- Basic template and template with all possible options
- <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-authoring-templates>

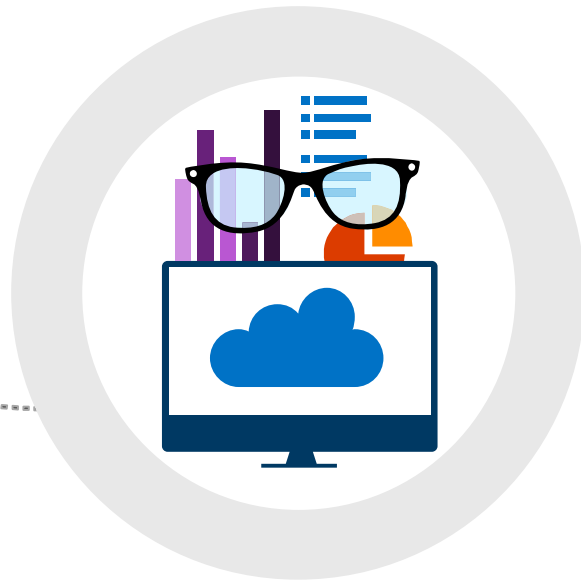
ARM Templates

When the solution is put together, it can be packaged for simpler deployment



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



+ New

Browse >

[See all](#)

Custom

FEATURED APPS



Template deployment

Customize your template and build for the cloud

Custom deployment

Deploy from a custom template

- ★ [Template](#)
- [Edit template](#)

Parameters

Edit parameters

★ Subscription
IaaS_Premium_Sub

* 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/deploymentTemplate",
3   "contentVersion": "1.0.0.0",
4   "parameters": {},
5   "resources": []
6 }
```

Save

Discard

Key Takeaways

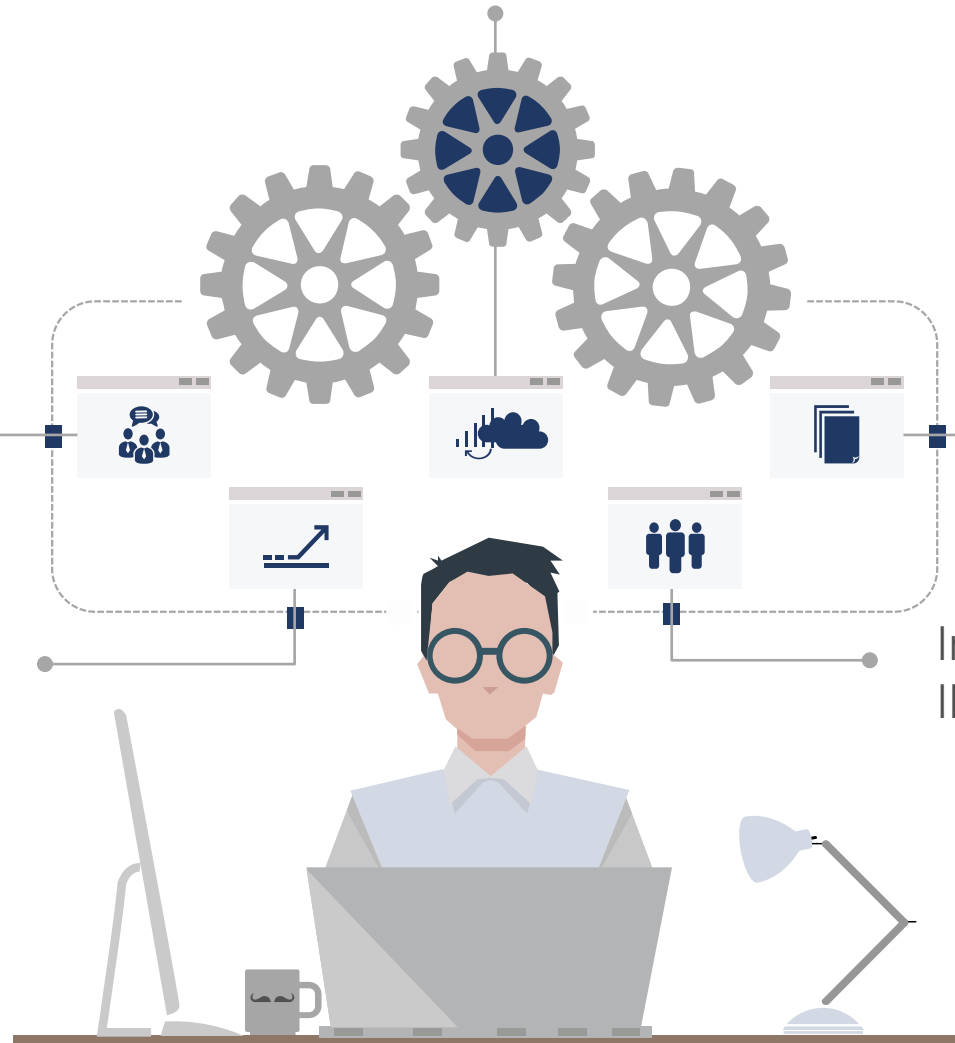
One Click Deployment with a
combination of ARM
Templates

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

Start with business
challenge(s).

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

Innovate, Hack, & Share
IP/Learnings.

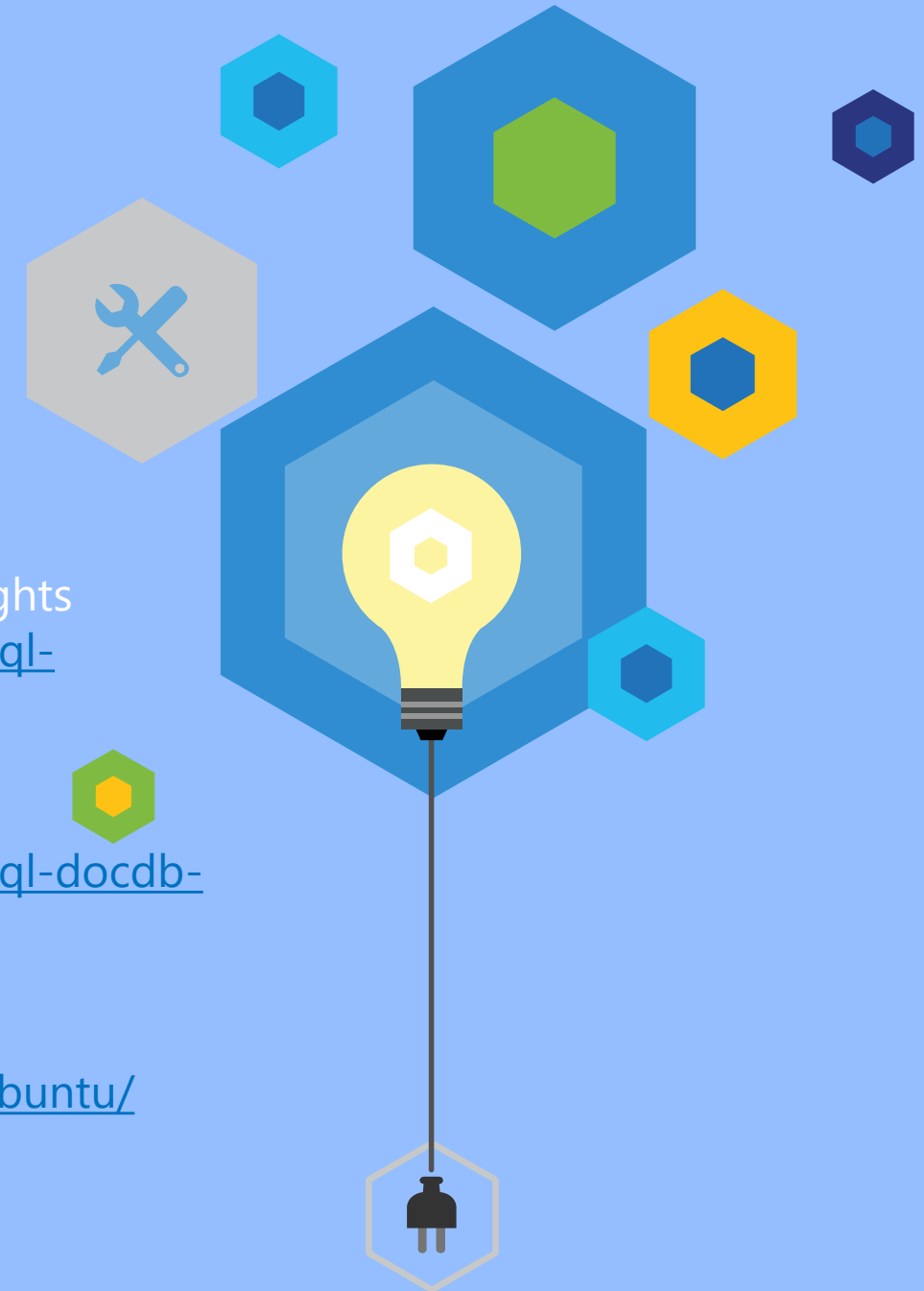


Basic ARM Template Demo

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:

```
<a href="https://azuredeploy.net/?repository=https://github.com/user/repo"
target="_blank">
  
</a>
```

Basic ARM Lab

*Please see lab document





Thank you!