nextfence
managed sentinel

ROBECO
The Investment Engineers

Brunel

Azure Sentinel Ninja Style

Pouyan Khabazi

Cloud Security & DevOps - Founder @NextFence

Microsoft® Most Valuable Professional

pkm-technology.com

@pkhabazi

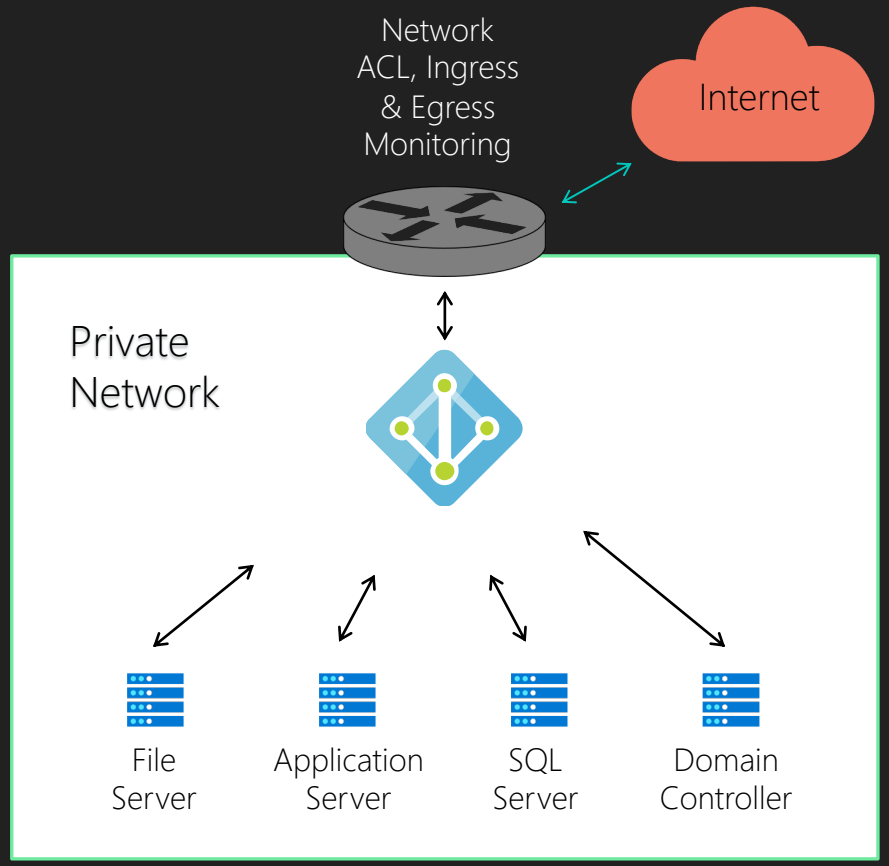
@pkhabazi

Subjects

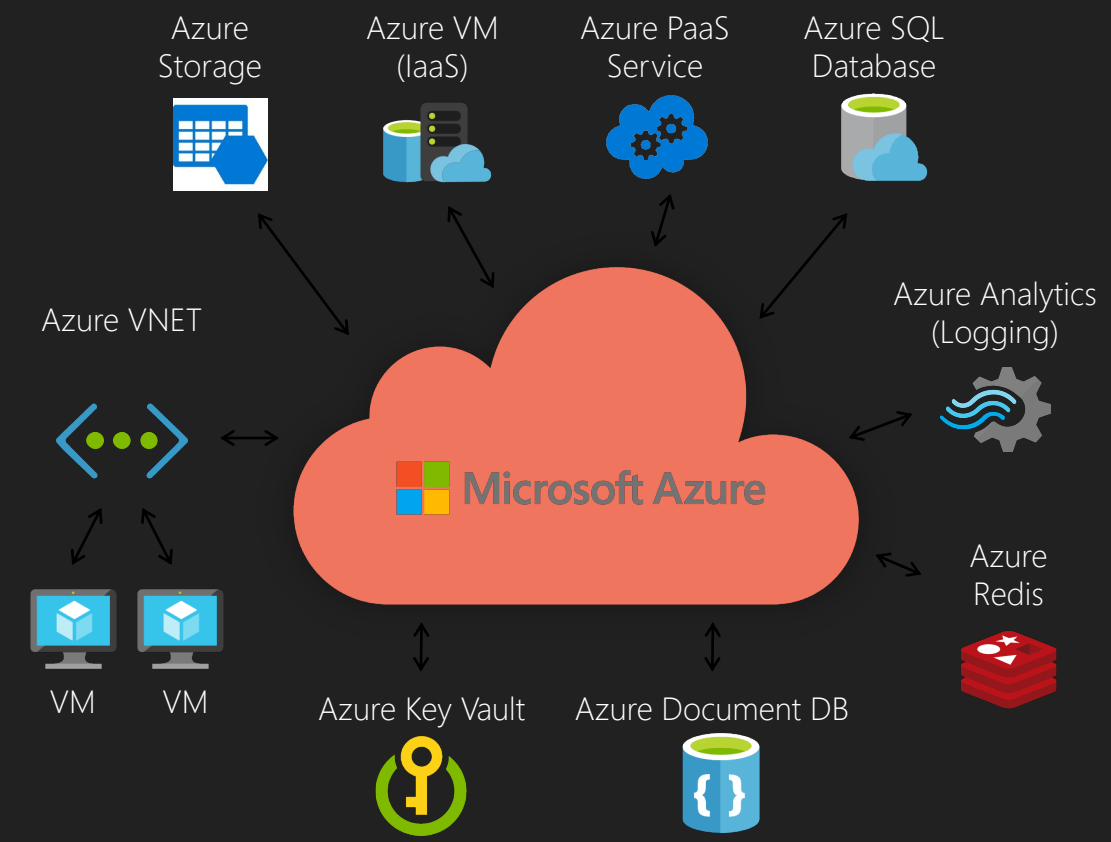
- A new world to defend
- Azure Sentinel
- Why DevOps?
- Deploying ninja style
- Demo
- Q&A

A new world to defend

On-premise



Cloud

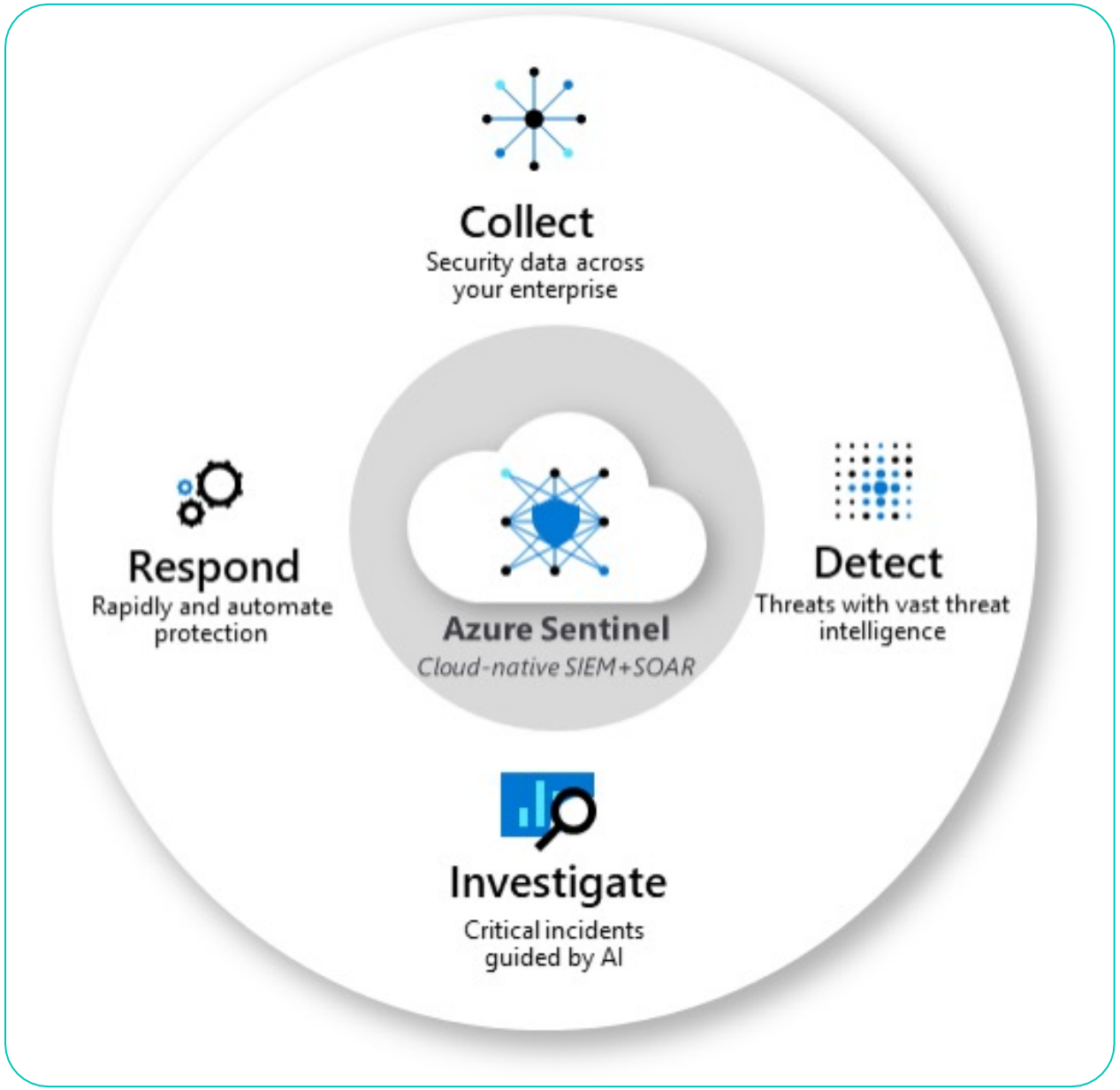


The challenges

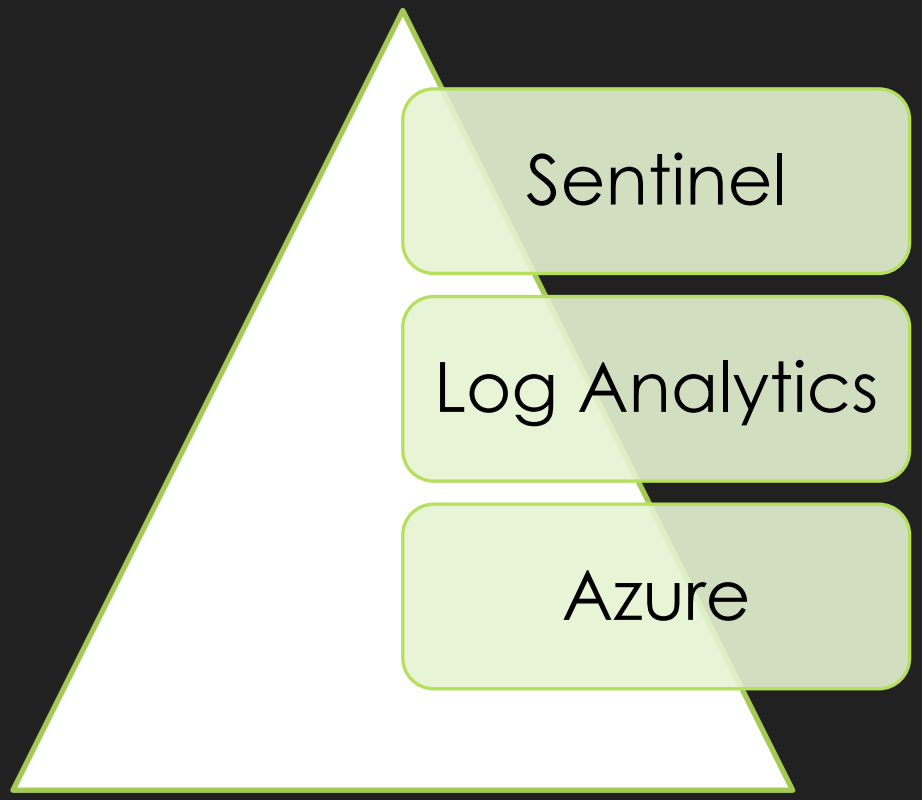
- Traditional SIEM's require a lot of infrastructure and maintenance
- Collecting all the data and normalizing is a daunting task
- Lots of signals; how do we make sense of it all
- Too many disconnected products
- Defending the cloud requires a different skill- and toolset

MICROSOFT AZURE SENTINEL IS A SCALABLE, CLOUD-NATIVE, SECURITY INFORMATION EVENT MANAGEMENT (SIEM) AND SECURITY ORCHESTRATION AUTOMATED RESPONSE (SOAR) SOLUTION.

Azure Sentinel



Architecture



Kusto-based

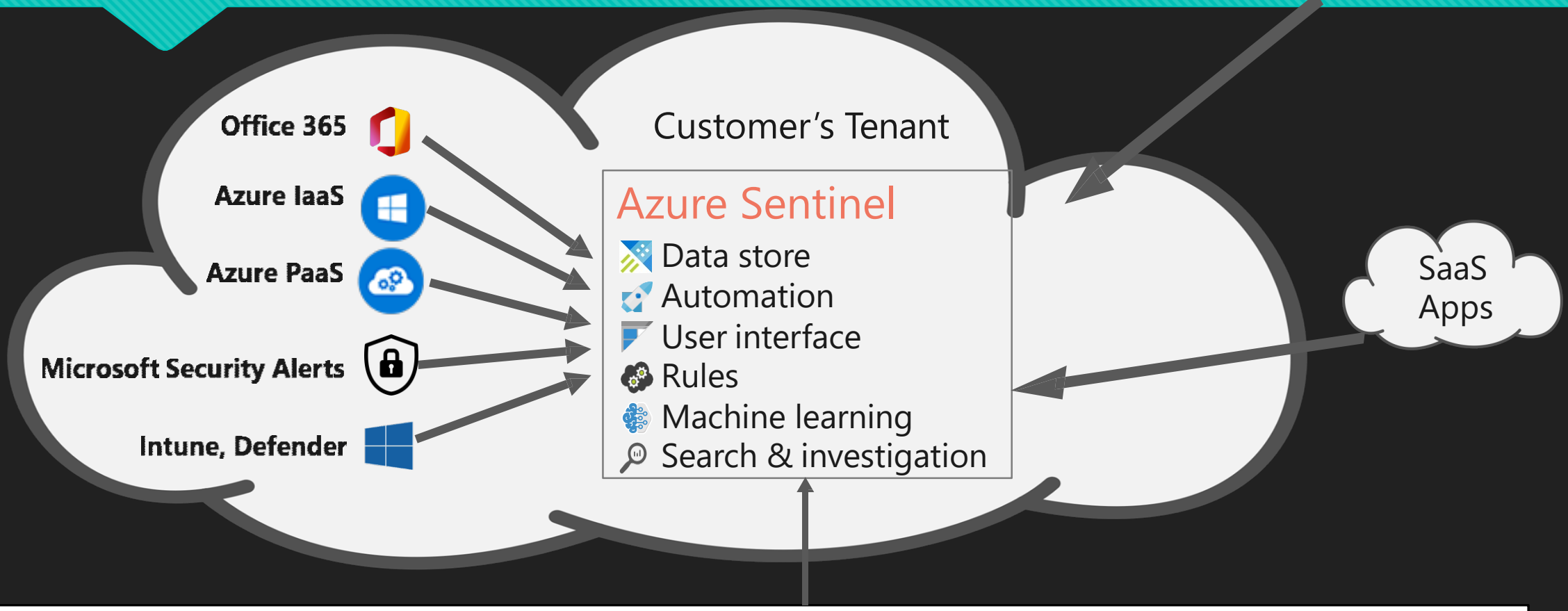
Unlimited scale

Enterprise-grade platform

KQL

```
OfficeActivity
| where Operation in~ ("Add-MailboxPermission", "Add-MailboxFolderPermission", "Set-Mailbox", "New-ManagementRoleAssignment")
    and not(UserId has_any ('NT AUTHORITY\\SYSTEM (Microsoft.Exchange.ServiceHost)', 'devilfish-applicationaccount') and Operation in~
("Add-MailboxPermission", "Set-Mailbox"))
| extend timestamp = TimeGenerated, AccountCustomEntity = UserId, IPCustomEntity = ClientIP
```

One SIEM to rule them all



Data Connectors

Azure AD
Identity Protection

Microsoft Cloud
App Security

Azure Security
Center

Microsoft 365 Defender

Azure Information
Protection

AWS

Palo Alto Networks

Cisco ASA

Barracuda

Office 365

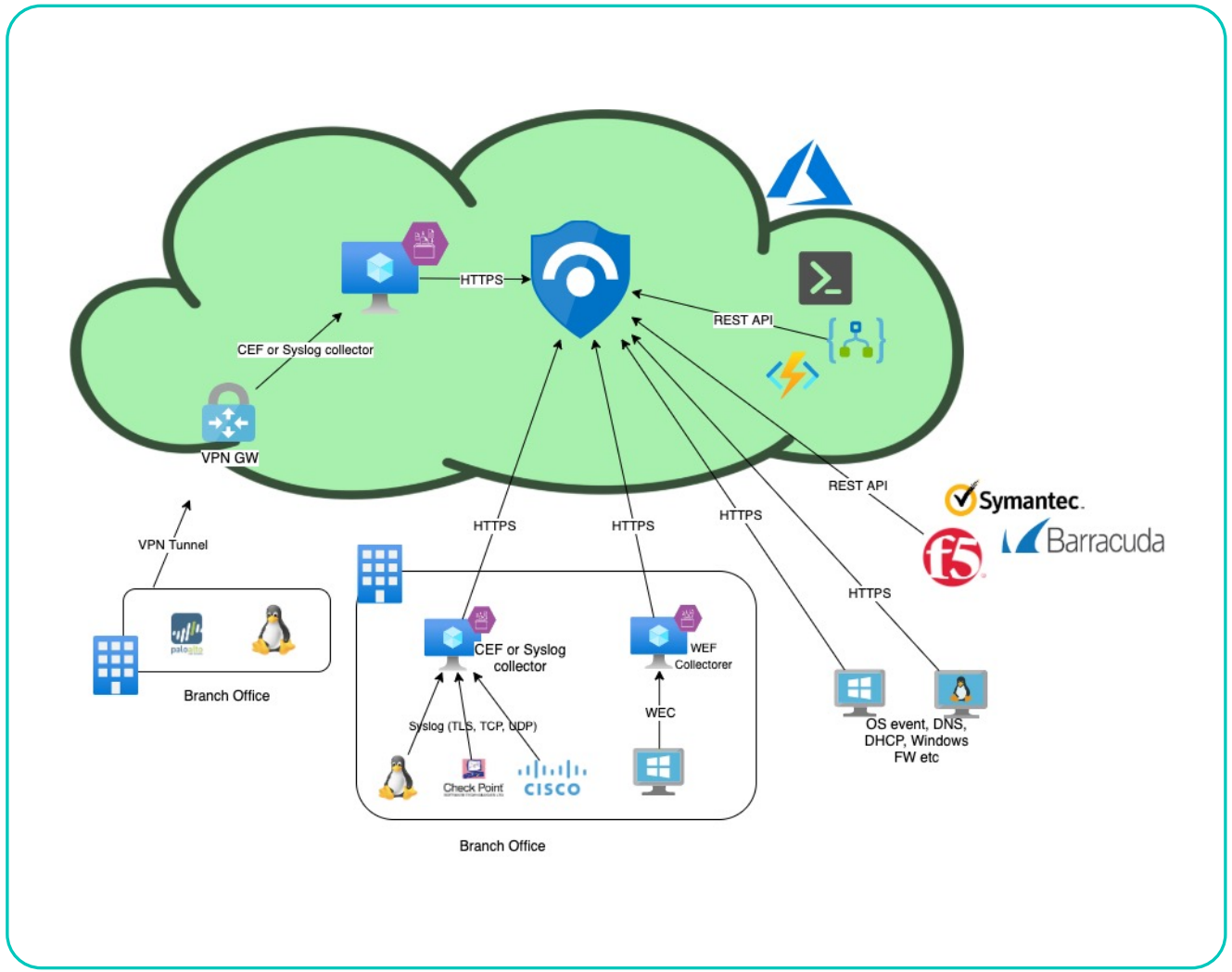
Symantec

Fortinet

F5

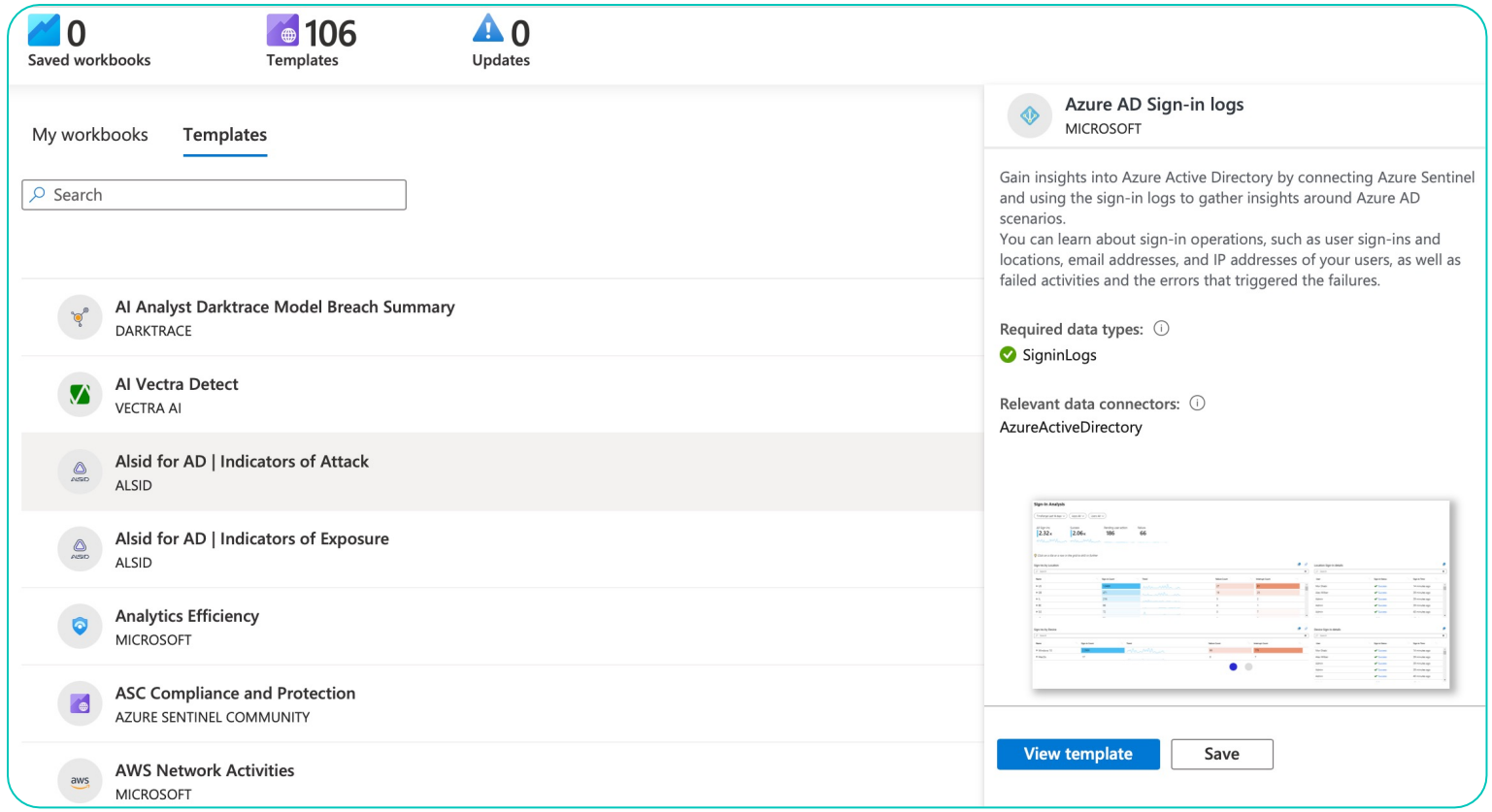
Check Point

And on-prem


HTTPS
REST API
CEF or Syslog collector
VPN GW
VPN Tunnel
HTTPS
HTTPS
HTTPS
REST API
HTTPS
Symantec.
Barracuda
CEF or Syslog collector
WEF Collectorer
WEC
Syslog (TLS, TCP, UDP)
Check Point
CISCO
OS event, DNS, DHCP, Windows FW etc
Branch Office
Branch Office

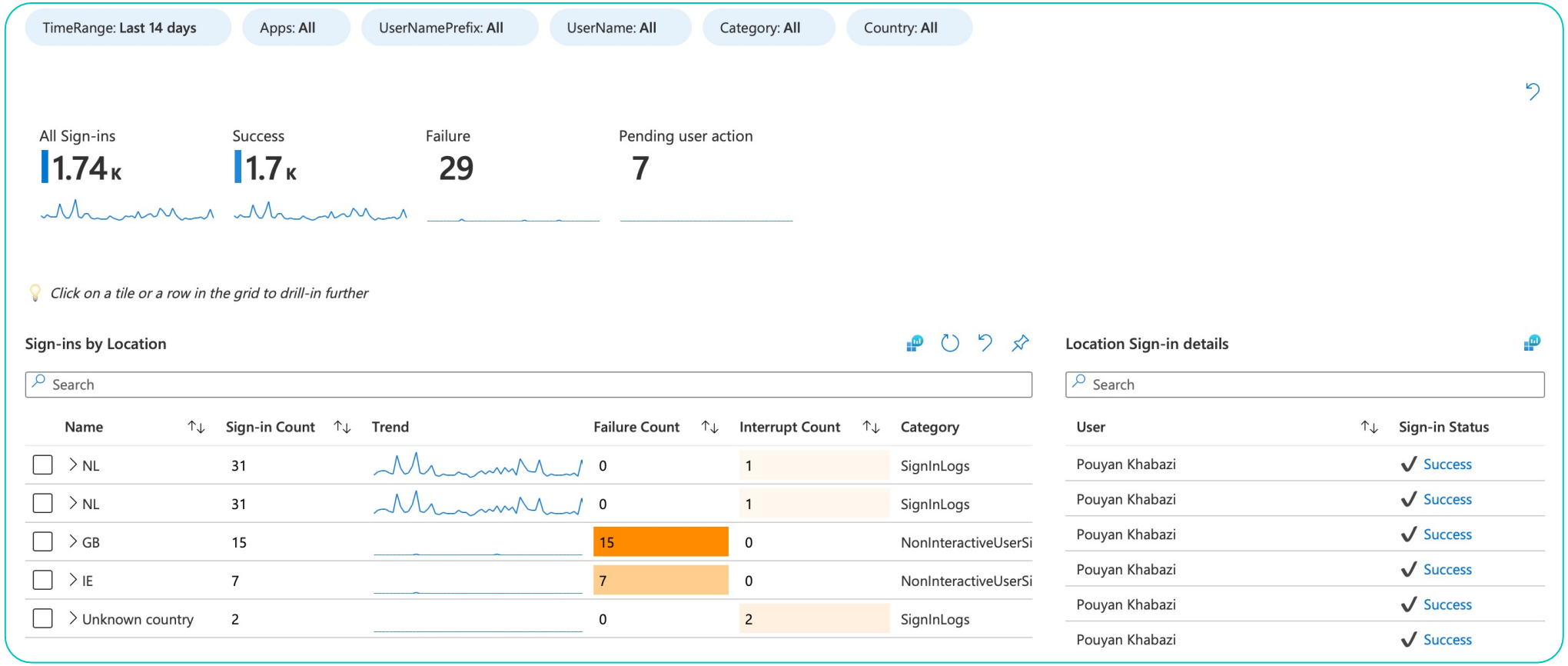
Data connector and costs

Data Connector	License	Permissions	Cost
Azure Activity	None	Subscription Reader	Free
Azure Defender	ASC Standard	Security Reader	Free
Azure Active Directory	Any AAD License	Global Admin or Security Admin	Billed
Azure Active Directory Identity Protection	AAD Premium 2	Global Admin or Security Admin	Free
Office 365	None	Global Admin or Security Admin	Free
Microsoft Cloud App	MCAS	Global Admin or Security Admin	Free
Microsoft Defender for Identity	MDI	Global Admin or Security Admin	Free
Microsoft Defender for Endpoint	MDI	Global Admin or Security Admin	Free
Threat Intelligence Platforms	None	Global Admin or Security Admin	Billed
Security Events	None	None	Billed
Syslog	None	None	Billed
DNS (Preview)	None	None	Billed
Windows Firewall	None	None	Billed



Workbooks

Workbooks provide a flexible canvas for data analysis and the creation of rich visual reports within the Azure portal. They allow you to tap into multiple data sources from across Azure, and combine them into unified interactive experiences.



Azure AD Sign-in logs

Analytics

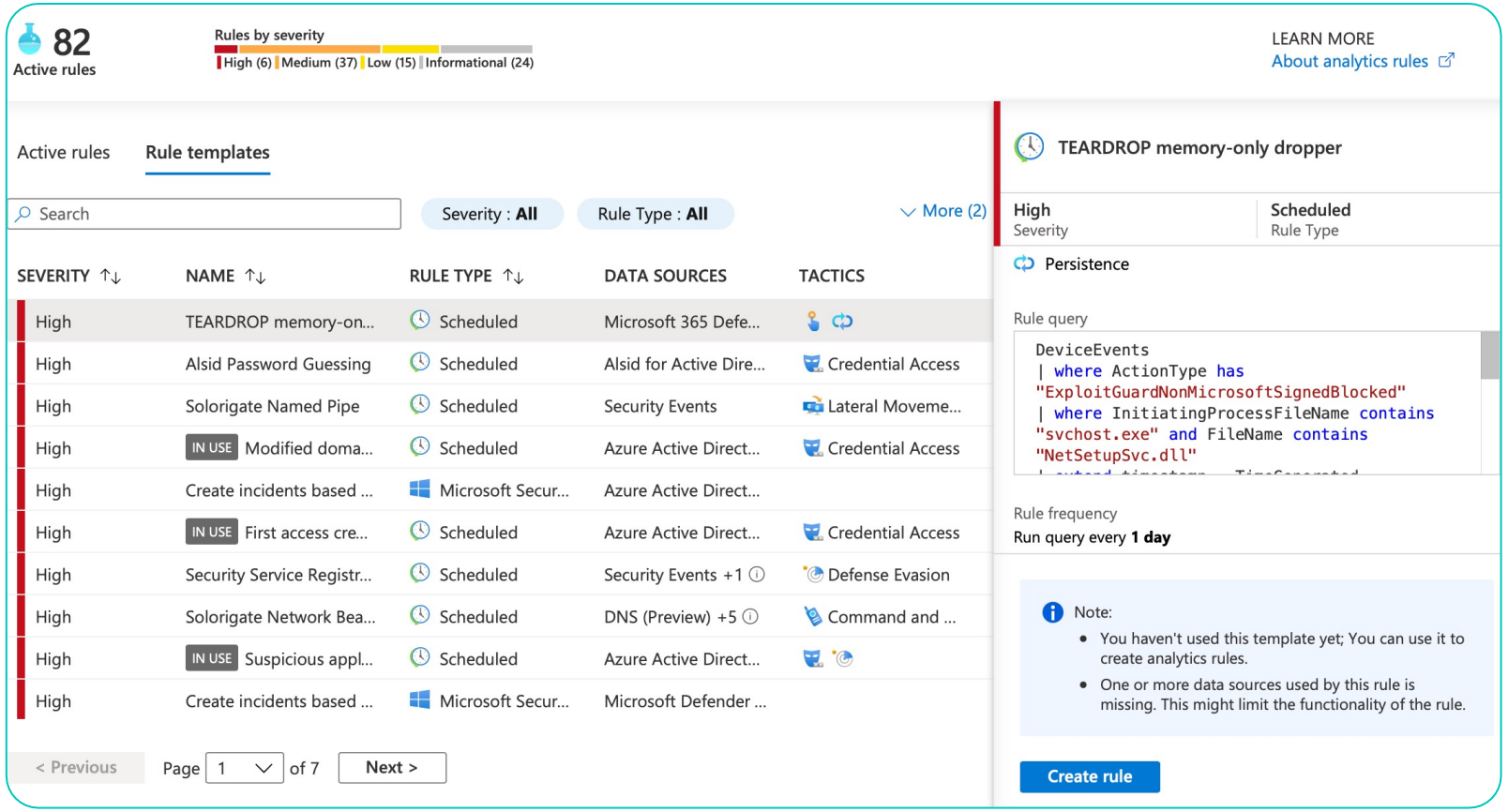
Microsoft security - Microsoft security templates automatically create Azure Sentinel incidents from the alerts generated in other Microsoft security solutions, in real time.

Fusion (preview) - Based on Fusion technology, advanced multistage attack detection in Azure Sentinel uses scalable machine learning algorithms that can correlate many low-fidelity alerts and events across multiple products into high-fidelity and actionable incidents.

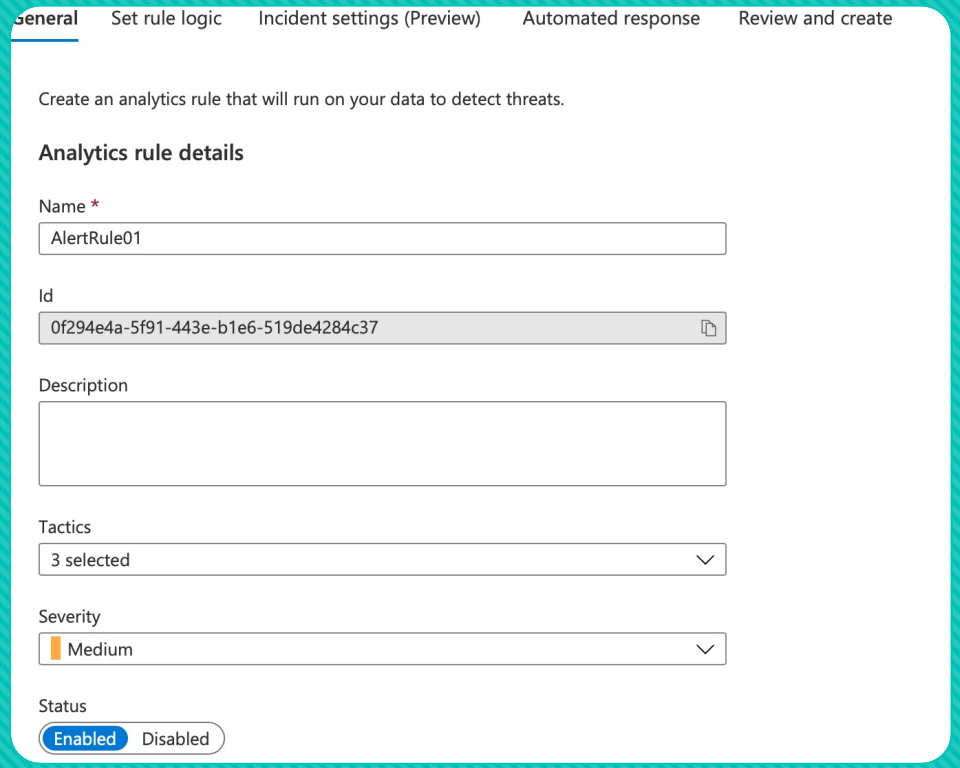
ML behavioral analytics (preview) - These templates are based on proprietary Microsoft machine learning algorithms, so you cannot see the internal logic of how they work and when they run. Because the logic is hidden and therefore not customizable, you can only create one rule with each template of this type.

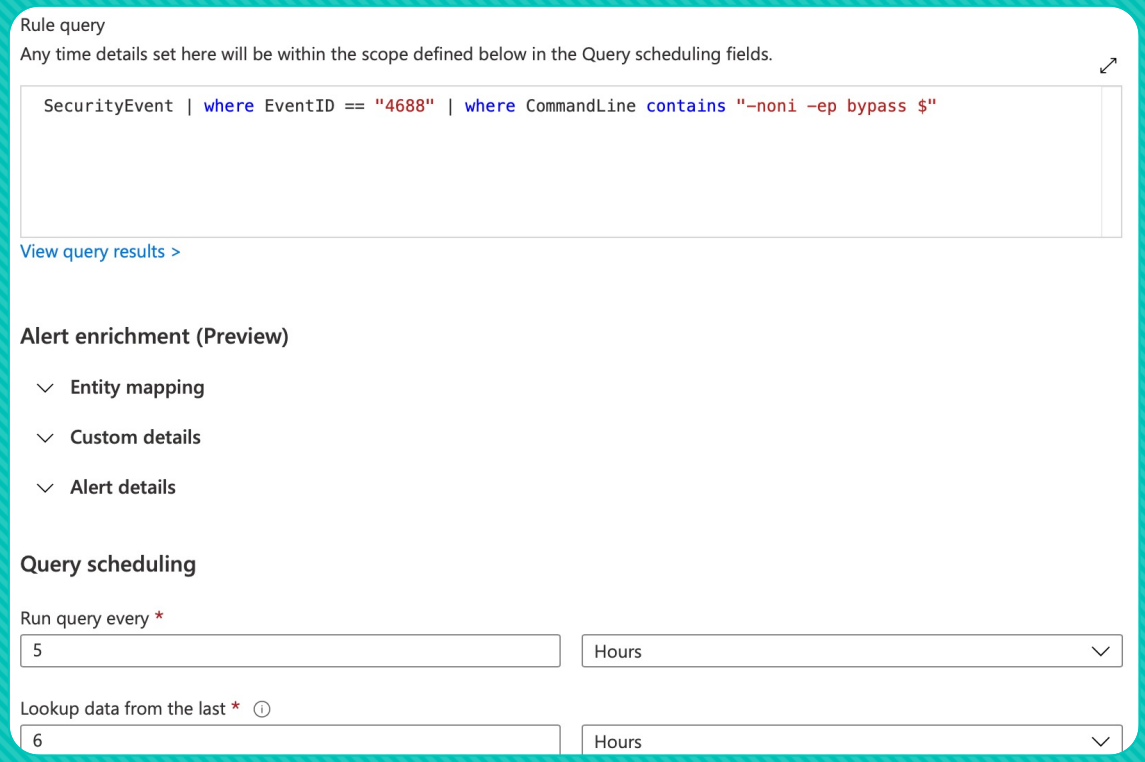
Scheduled - You can use the scheduled and customize the query logic and scheduling settings to create new rules.

Anomaly (preview) - Anomaly rule templates use SOC-ML (machine learning) to detect specific types of anomalous behavior.


82
Active rules
Rules by severity
High (6) Medium (37) Low (15) Informational (24)
LEARN MORE
About analytics rules
Active rules
Rule templates
Search
Severity : All
Rule Type : All
More (2)
SEVERITY
NAME
RULE TYPE
DATA SOURCES
TACTICS
High TEARDROP memory-on... Scheduled Microsoft 365 Defe...
High Alsid Password Guessing Scheduled Alsid for Active Dire... Credential Access
High Solorigate Named Pipe Scheduled Security Events Lateral Moveme...
High IN USE Modified doma... Scheduled Azure Active Direct... Credential Access
High Create incidents based ... Microsoft Secur... Azure Active Direct...
High IN USE First access cre... Scheduled Azure Active Direct... Credential Access
High Security Service Registr... Scheduled Security Events +1 Defense Evasion
High Solorigate Network Bea... Scheduled DNS (Preview) +5 Command and ...
High IN USE Suspicious appl... Scheduled Azure Active Direct...
High Create incidents based ... Microsoft Secur... Microsoft Defender ...
< Previous
Page 1 of 7
Next >
TEARDROP memory-only dropper
High
Severity
Scheduled
Rule Type
Persistence
Rule query
DeviceEvents
| where ActionType has
"ExploitGuardNonMicrosoftSignedBlocked"
| where InitiatingProcessFileName contains
"svchost.exe" and FileName contains
"NetSetupSvc.dll"
Rule frequency
Run query every 1 day
Note:
You haven't used this template yet; You can use it to create analytics rules.
One or more data sources used by this rule is missing. This might limit the functionality of the rule.
Create rule

Templates

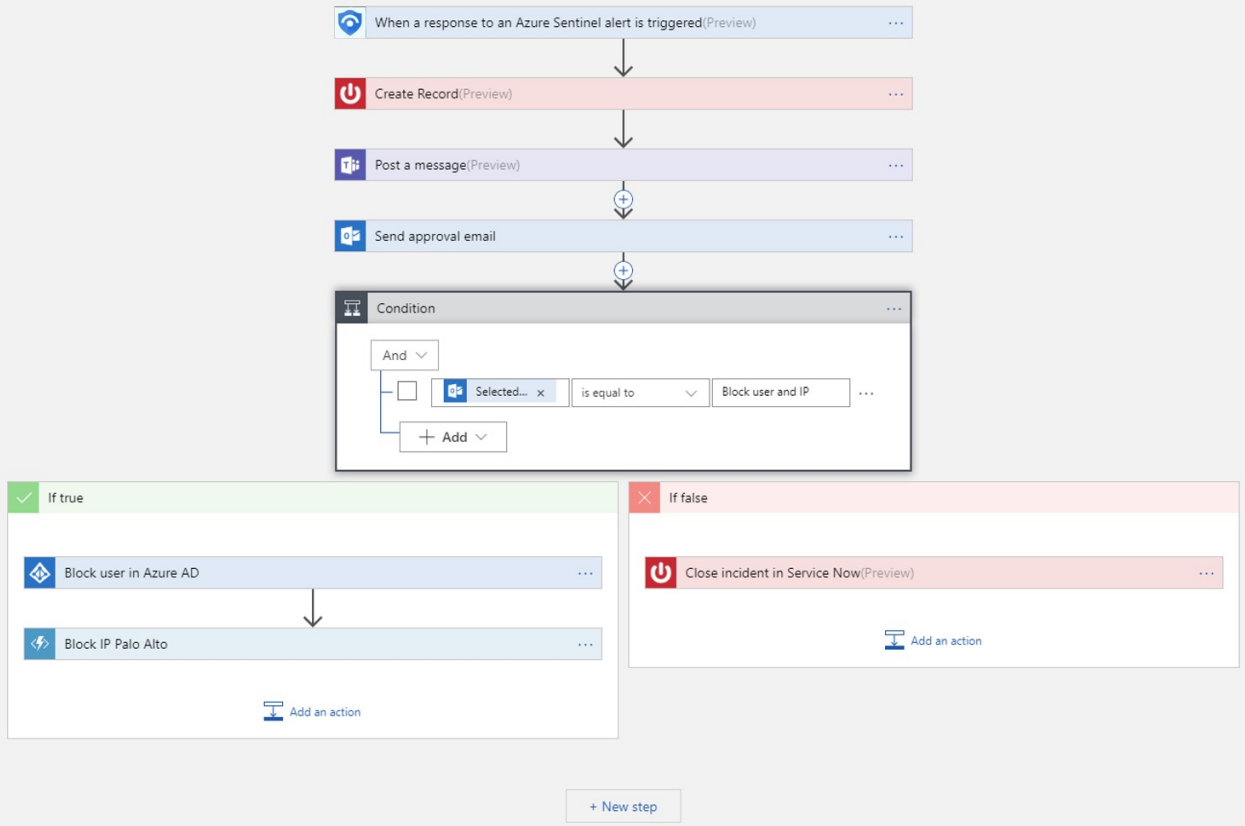




Analytics KQL

SOAR - Playbooks

Automation rules allow you to centrally manage all the automation of incident handling. Automation rules streamline automation use in Azure Sentinel and enable you to simplify complex workflows for your incident orchestration processes.



Automation & Response

Time to go DevOps Ninja style

Why DevOps?

The main reason is to implement the "shift left" Way of Working (Wow). The term 'shift left' refers to a practice in software development where teams focus on quality, work on problem prevention instead of detection, and begin testing earlier than ever before.

What do we need?

Shifting left requires two key DevOps practices:

- Continuous testing
- Continuous deployment

Continuous testing involves automating tests and running those tests as early and often as possible. Continuous deployment automates the provisioning and deployment of new builds, enabling continuous testing to happen quickly and efficiently.

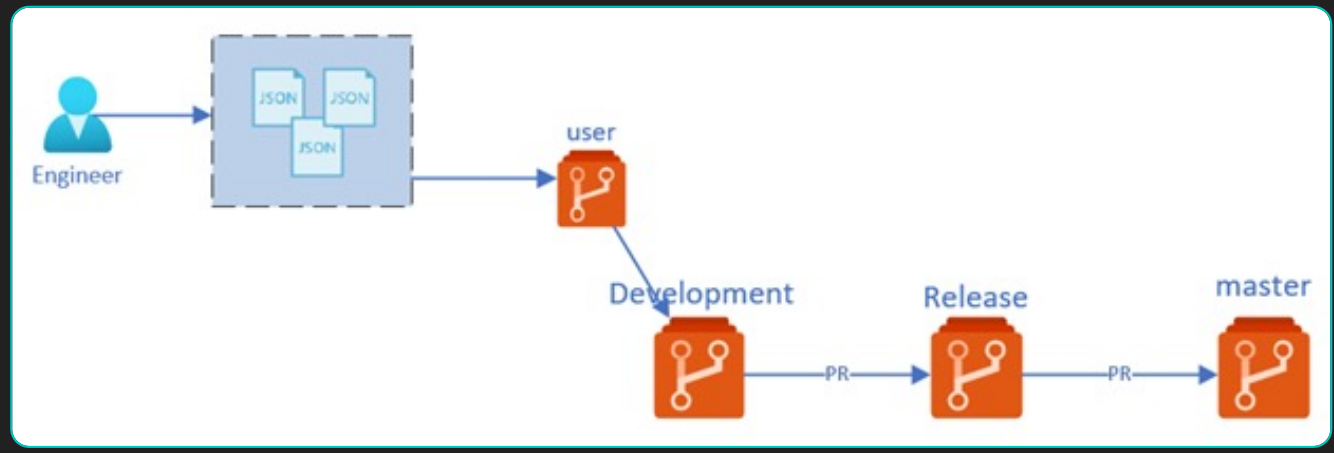
Security as Code (SaC)

Security as Code (SaC) manages infrastructure (networks, virtual machines, load balancers, even your Azure Sentinel rules and settings) in a **descriptive** model, using the same versioning as DevOps teams use for source code.


```
{
  "displayName": "string",
  "description": "string",
  "AlertRuleTemplateName": "string",
  "severity": "High",
  "enabled": true,
  "query": "SecurityEvent | where EventID == \"4688\" | where CommandLine contains \"-noni -ep b
  "queryFrequency": "5H",
  "queryPeriod": "5H",
  "triggerOperator": "GreaterThan",
  "triggerThreshold": 5,
  "suppressionDuration": "6H",
  "suppressionEnabled": false,
  "tactics": [
    "Persistence",
    "LateralMovement",
    "Collection"
  ],
  "playbookName": "string",
  "aggregationKind": "string",
  "incidentConfiguration": {
    "createIncident": true,
    "groupingConfiguration": {
      "GroupingConfigurationEnabled": true,
      "reopenClosedIncident": true,
      "lookbackDuration": "PT6H",
      "entitiesMatchingMethod": "string",
      "groupByEntities": [
        "Account",
        "Ip",
        "Host",
        "Url",
        "FileHash"
      ]
    }
  }
}
```

Repository

Git is a free and open-source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

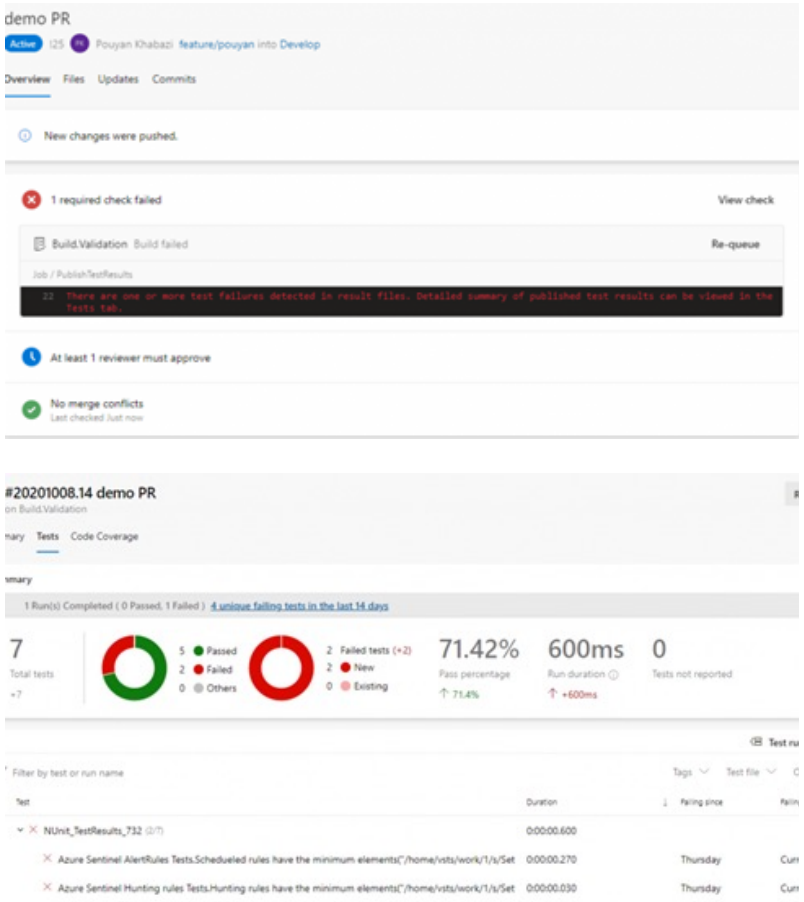


Pipelines - Automate your workflow

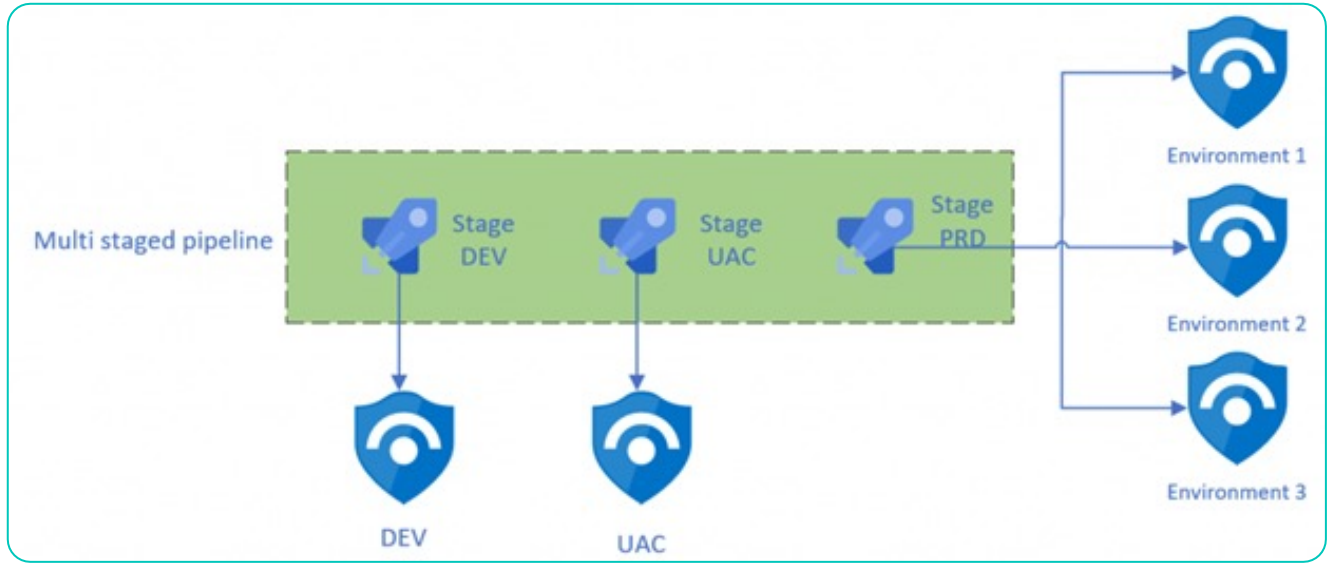
Azure Pipelines automatically builds and tests code projects to make them available to others. It works with just about any language or project type. Azure Pipelines combines continuous integration (CI) and continuous delivery (CD) to constantly and consistently test and build your code and ship it to any target.

Continues testing

Pester provides a framework for writing and running tests. Pester is most commonly used for writing unit and integration tests, but it is not limited to just that. It is also a base for tools that validate whole environments, computer deployments, database configurations, and so on.



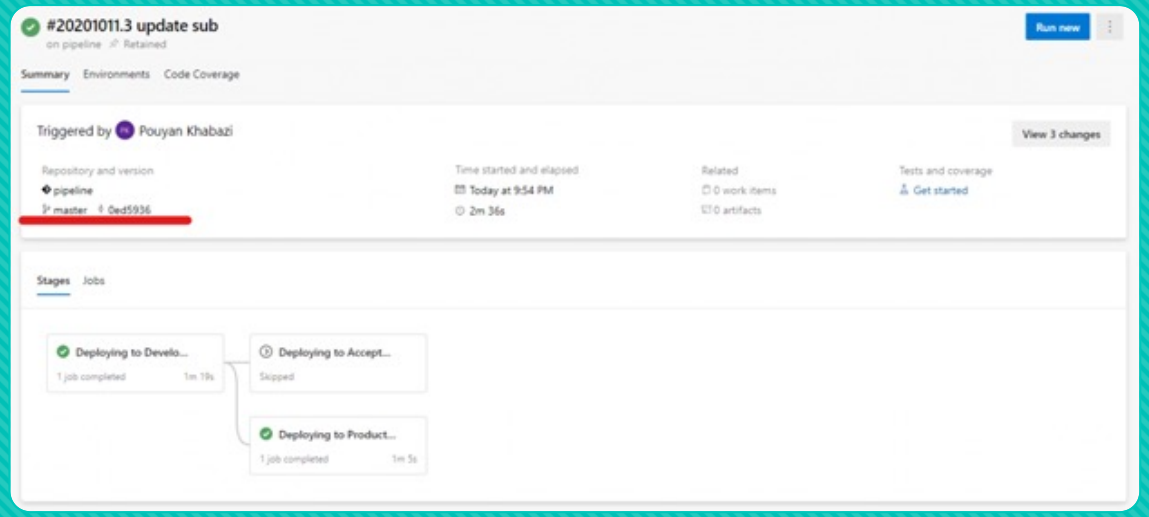
Continuous deployment

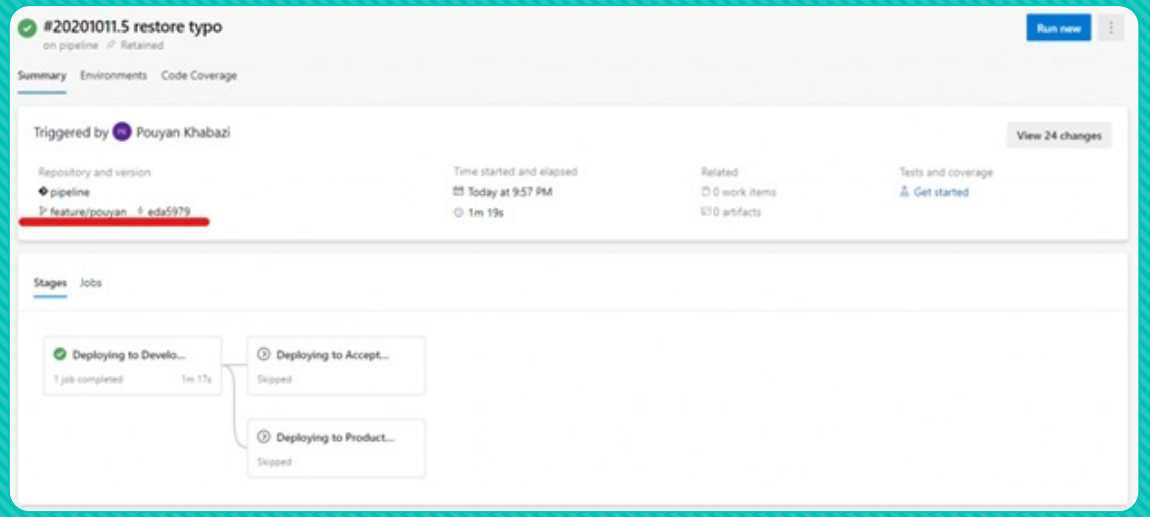


Pipeline Template

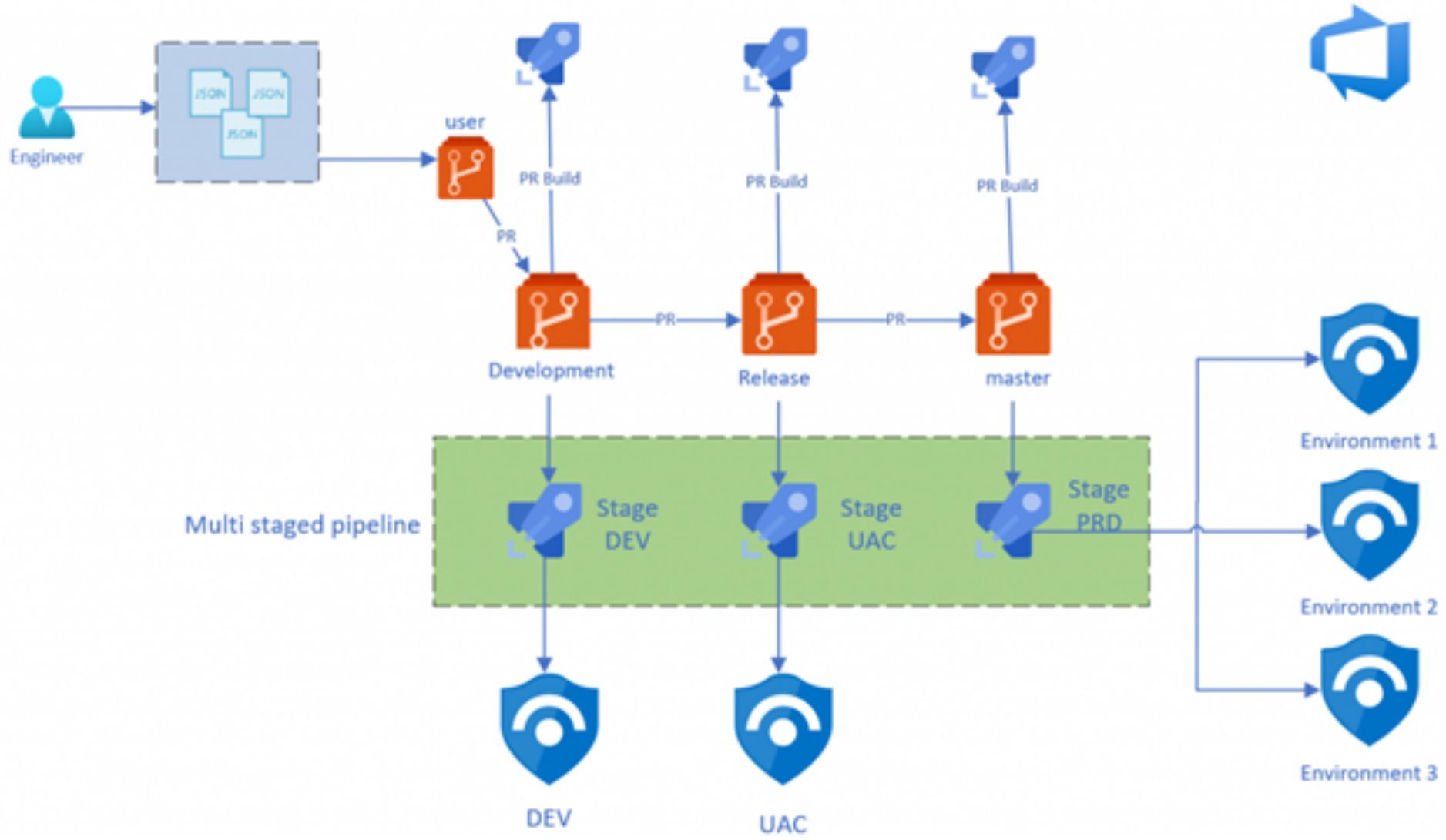
Pipeline Templates let us define reusable content, logic, and parameters. Templates function in two ways. You can insert reusable content with a template or use a template to control what is allowed in a pipeline.

```yaml
- template: pipelines/steps.yml
  parameters:
    environment: Dev
    azureSubscription: ''
    WorkspaceName: ''  # Enter the Azure Sentinel Workspace name
    SubscriptionId: 'cd466daa-3528-481e-83f1-7a7148706287'
    ResourceGroupName: ''
    ResourceGroupLocation: 'westeurope'
    EnableSentinel: true
    analyticsRulesFile: SettingFiles/AlertRules.json  # leave empty if you dont
    huntingRulesFile: SettingFiles/HuntingRules.json  # leave empty if you do
    PlaybooksFolder: Playbooks/  # leave empty if you dont want to configure Playbo
    ConnectorsFile: SettingFiles/DataConnectors.json  # leave empty if you d
    WorkbooksFolder: Workbooks/
    WorkbookSourceId: ''  # leave empty if you dont want to configure Workbook
```


#20201011.3 update sub
on pipeline Retained
Run new
Summary Environments Code Coverage
Triggered by Pouyan Khabazi
View 3 changes
Repository and version
pipeline
master 0ed5936
Time started and elapsed
Today at 9:54 PM
2m 36s
Related
0 work items
0 artifacts
Tests and coverage
Get started
Stages Jobs
Deploying to Develo...
1 job completed 1m 19s
Deploying to Accept...
Skipped
Deploying to Product...
1 job completed 1m 5s


#20201011.5 restore typo
on pipeline Retained
Run new
Summary Environments Code Coverage
Triggered by Pouyan Khabazi
View 24 changes
Repository and version
pipeline
feature/pouyan eda5979
Time started and elapsed
Today at 9:57 PM
1m 19s
Related
0 work items
0 artifacts
Tests and coverage
Get started
Stages Jobs
Deploying to Develo...
1 job completed 1m 17s
Deploying to Accept...
Skipped
Deploying to Product...
Skipped

Example


Engineer
JSON
JSON
JSON
user
PR Build
PR Build
PR Build
PR
PR
PR
Development
Release
master
Multi staged pipeline
Stage
DEV
Stage
UAC
Stage
PRD
Environment 1
Environment 2
Environment 3
DEV
UAC

Demo

Demo content

Code: https://github.com/pkhabazi/sentineldevops
Blog: https://techcommunity.microsoft.com/t5/azure-sentinel/deploying-and-managing-azure-sentinel-ninja-style/ba-p/1858073

Great community work

- **sentinel-all-in-one** by @soricloud
- https://kustoking.com @castello_johnny
- SecureHats by @DijkmanRogier
- Grand Connector List by @Oshezaf
- Sentinel Ninja Training by @Oshezaf
- https://getrevue.co/profile/AzureSentinelToday by @RodTrent
- Azure Sentinel GitHub by Microsoft, the community and you
- Azure Sentinel - Microsoft Tech Community by Microsoft, the community and you

Questions?

Microsoft® Most Valuable Professional

Pouyan Khabazi
Cloud Security & DevOps – Founder @NextFence

pkm-technology.com

@pkhabazi

@pkhabazi