AZURE DAY

Che l'attributo sia con te!
ABAC, non solo ruoli in Azure!!

Massimo Bonanni @ Microsoft

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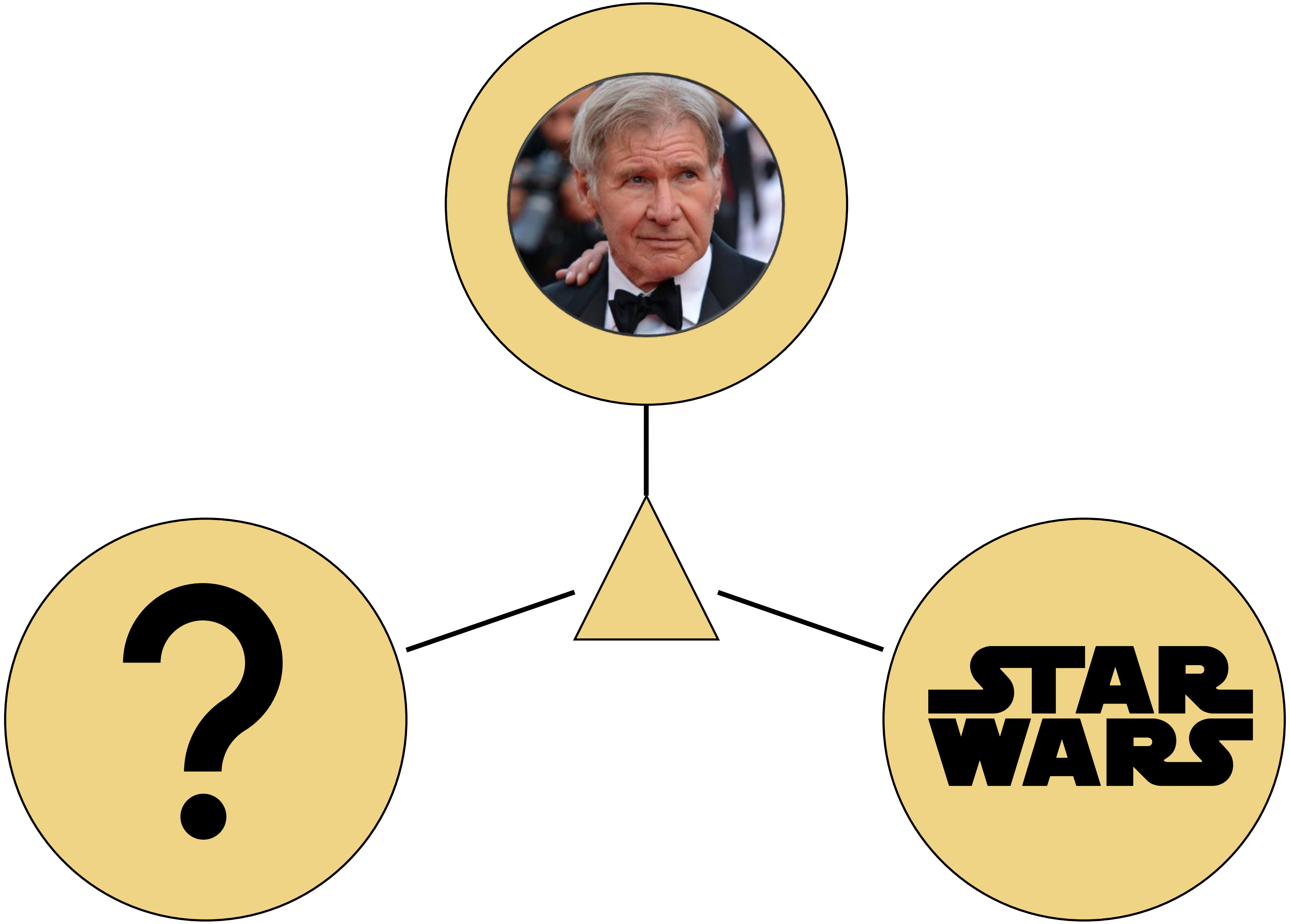
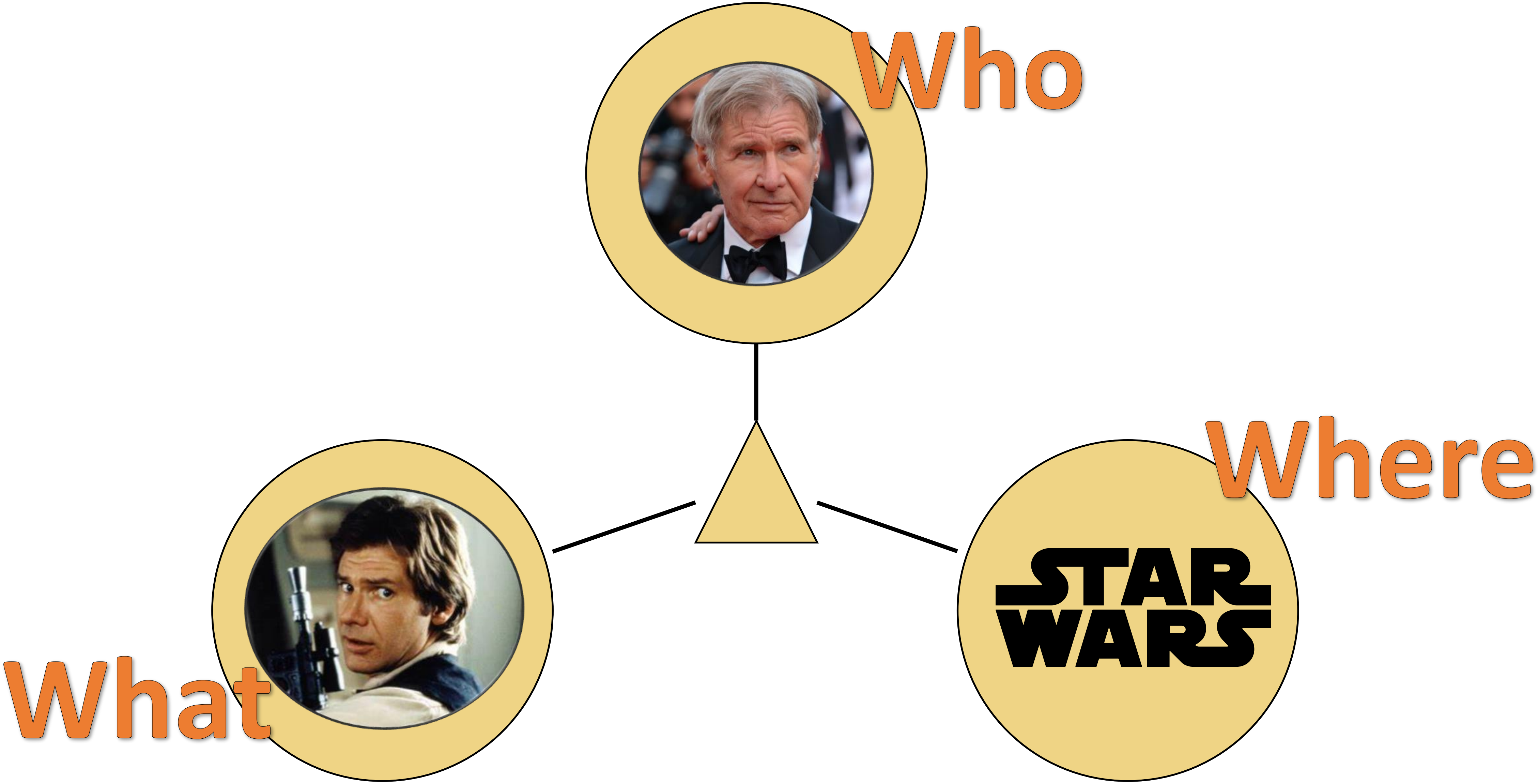
RBAC

Role-Based Access Control grants or denies permissions to keep the cloud's Force balanced.

RBAC in Star Wars



RBAC in Star Wars



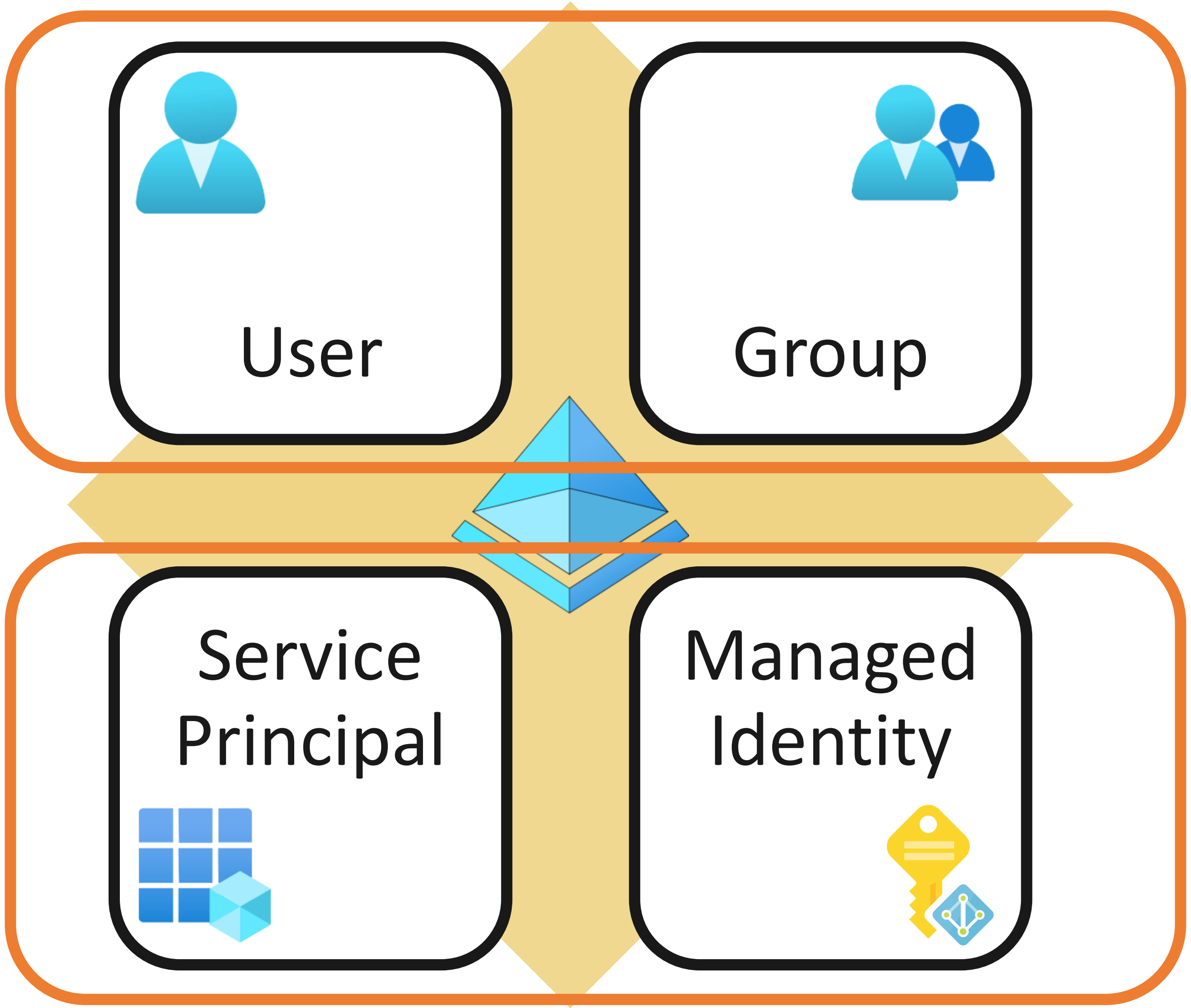
Who

What

Where

Azure **Role-Based Access Control (RBAC)** is an authorization system built on **Azure Resource Manager** that provides fine-grained access management of Azure resources.

Who – Security Principal



User

Group

Service Principal

Managed Identity

Interactive Identities

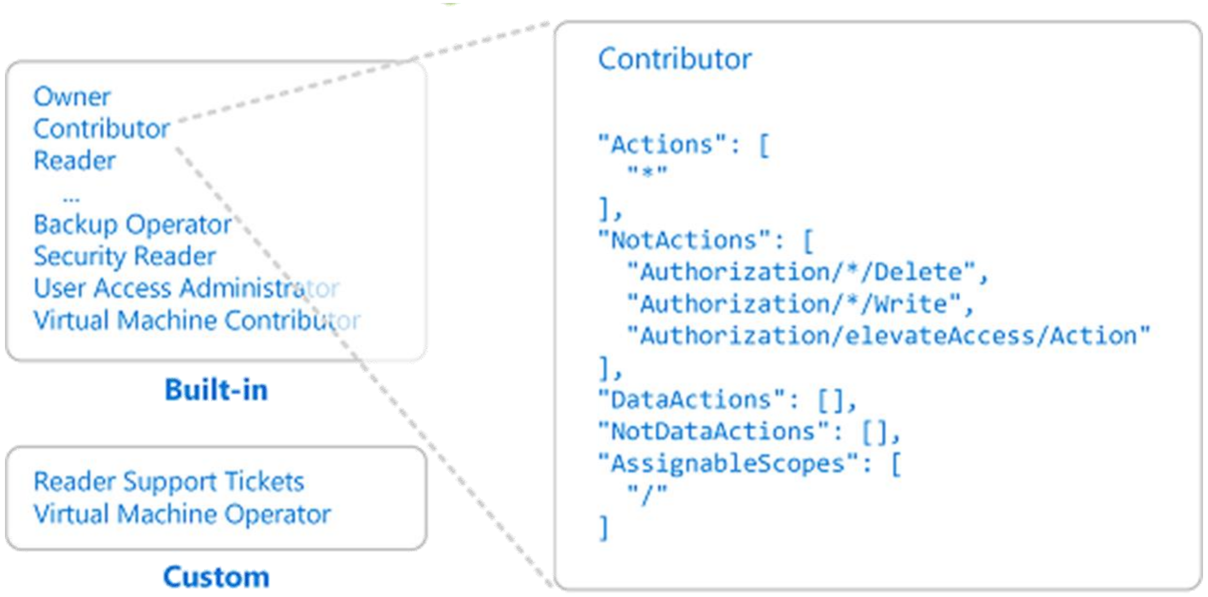
Applicative Identities

What – Role Definition

A role definition is a collection of permissions, a lists the **operations** that can be performed.

Roles can be high-level, like **owner**, or specific, like **virtual machine reader**.

Azure includes several **built-in roles** that you can use but you can create your **custom role**.



Owner
Contributor
Reader
...
Backup Operator
Security Reader
User Access Administrator
Virtual Machine Contributor

Built-in

Reader Support Tickets
Virtual Machine Operator

Custom

Contributor

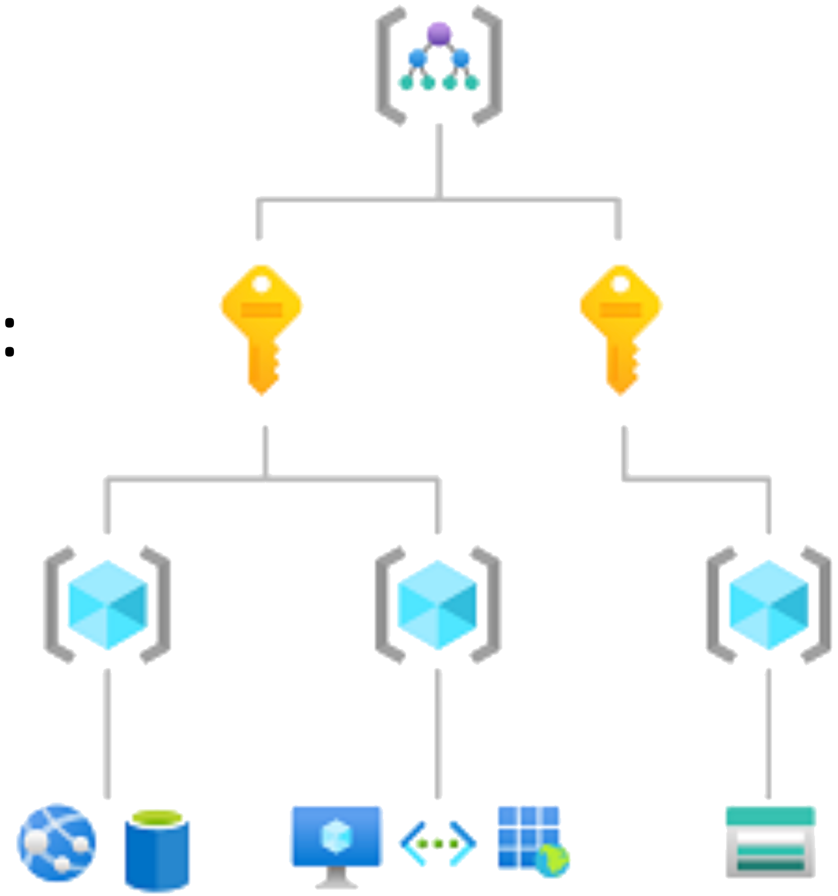
```
"Actions": [
  "*"
],
"NotActions": [
  "Authorization/*/Delete",
  "Authorization/*/Write",
  "Authorization/elevateAccess/Action"
],
"DataActions": [],
"NotDataActions": [],
"AssignableScopes": [
  "/"
]
```

Where – Scope

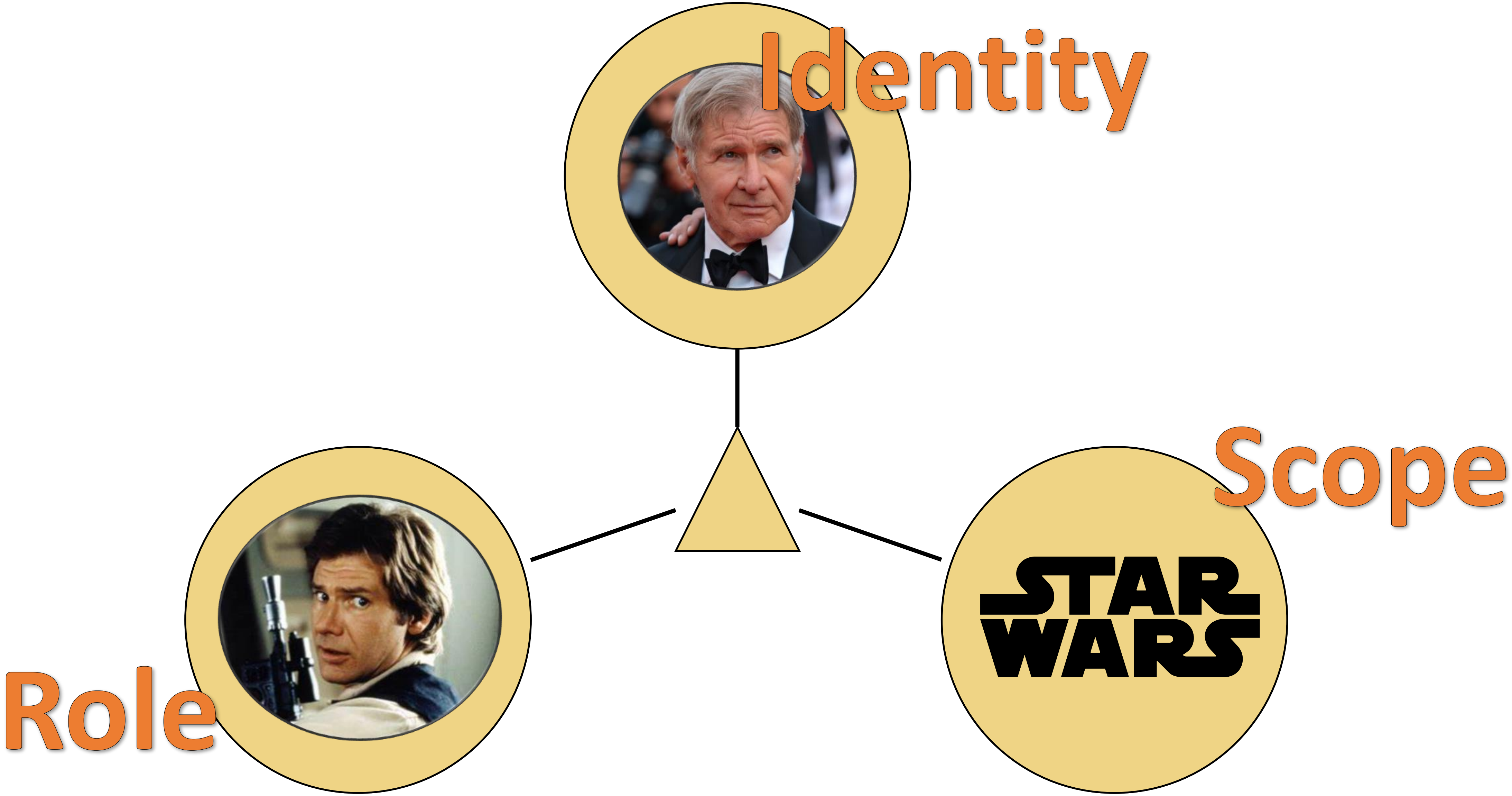
Scope is the set of resources that the access applies to.

You can specify a scope at multiple levels:

- ✓ Management group
- ✓ Subscription
- ✓ Resource Group
- ✓ Resource (sub-resource)



RBAC in Star Wars



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- ✓ **John** has been hired to manage the administration of the company, but she can read only the invoices.
- ✓ **Invoices** are stored in a **Storage Account**.
- ✓ Within the same storage, in the same container, there are also **reports** and **receipts**.
- ✓ John will manage documents using **custom software** or through the **Storage Explorer**

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ABAC

Attribute-Based Access Control in Azure is like the Force-sensitive Jedi, unlocking data and resources based on unique attributes, not just rank or title.

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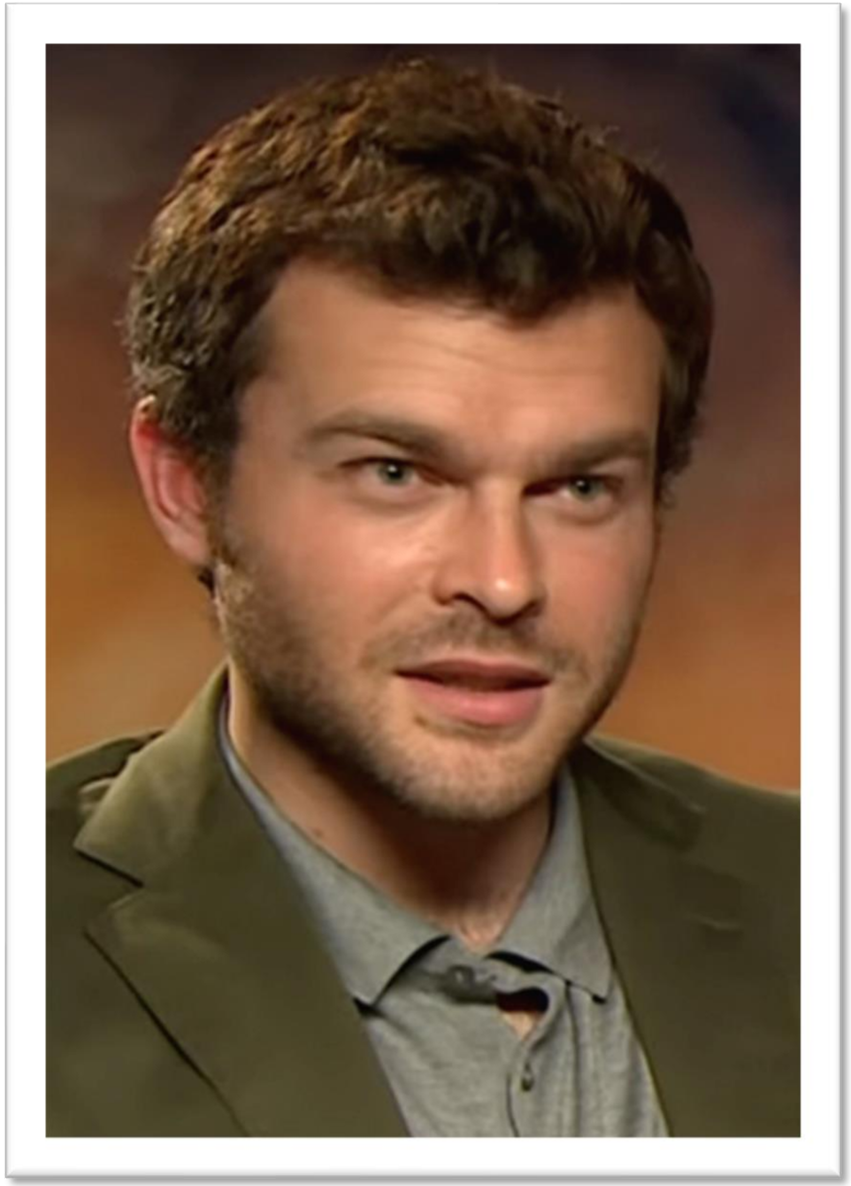
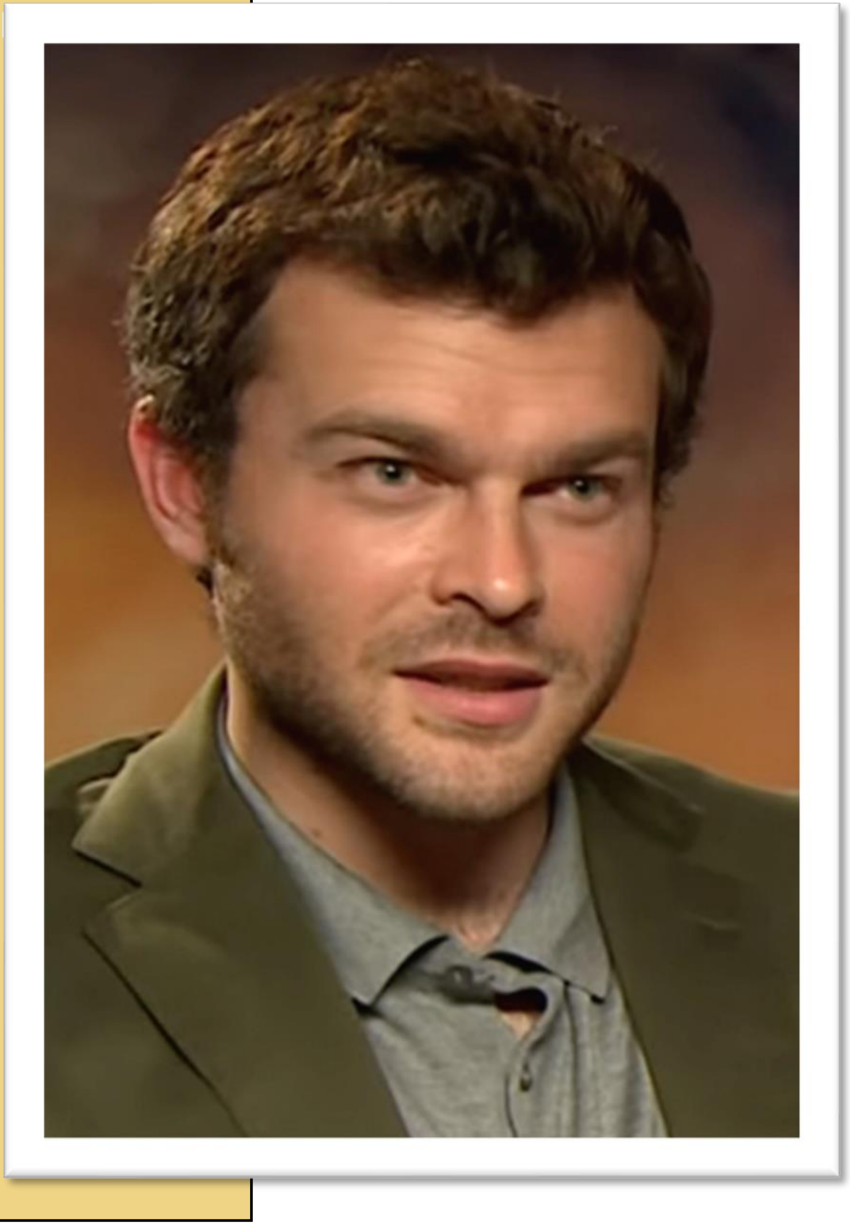
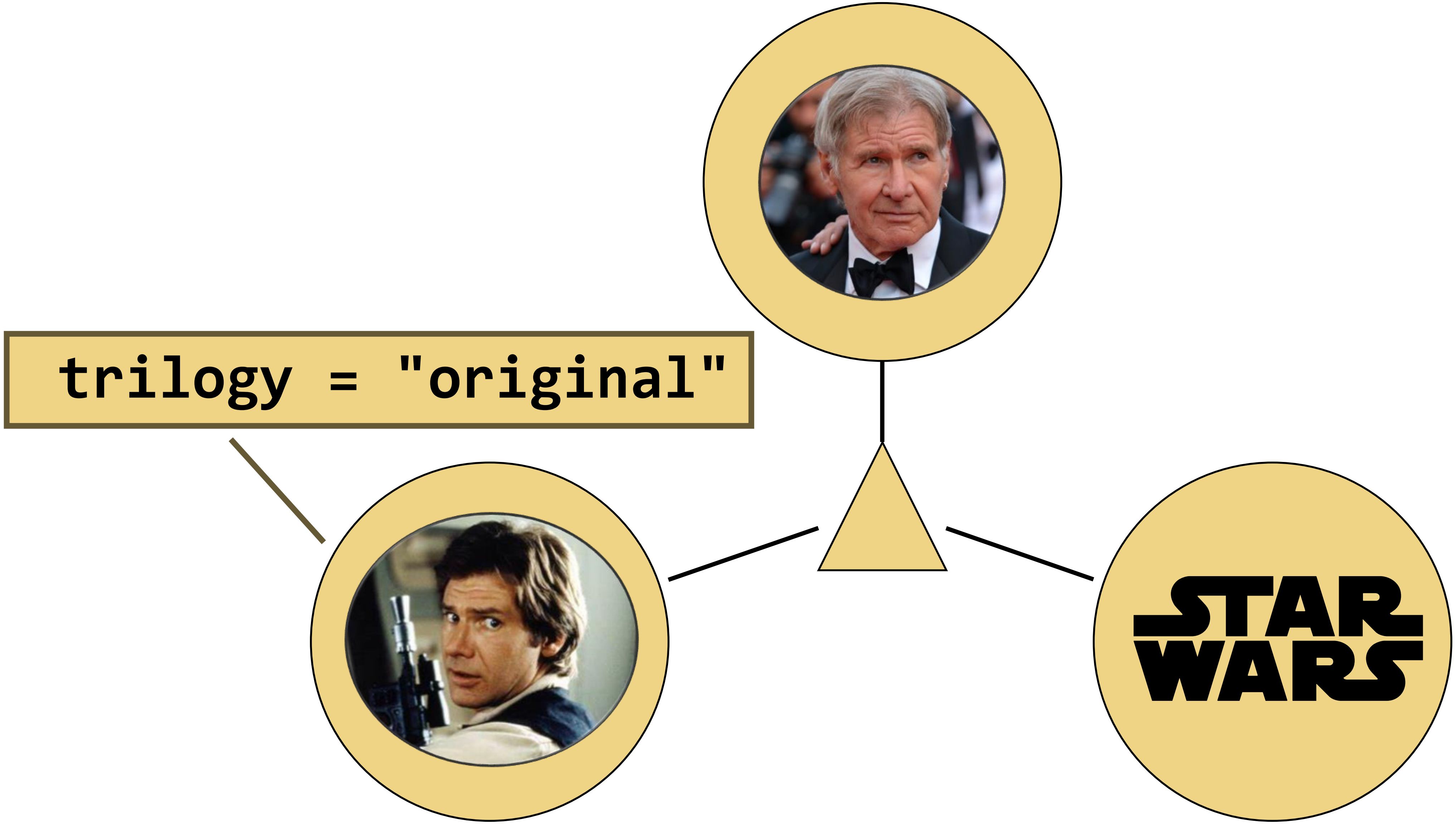
Who is he?



Who is he?



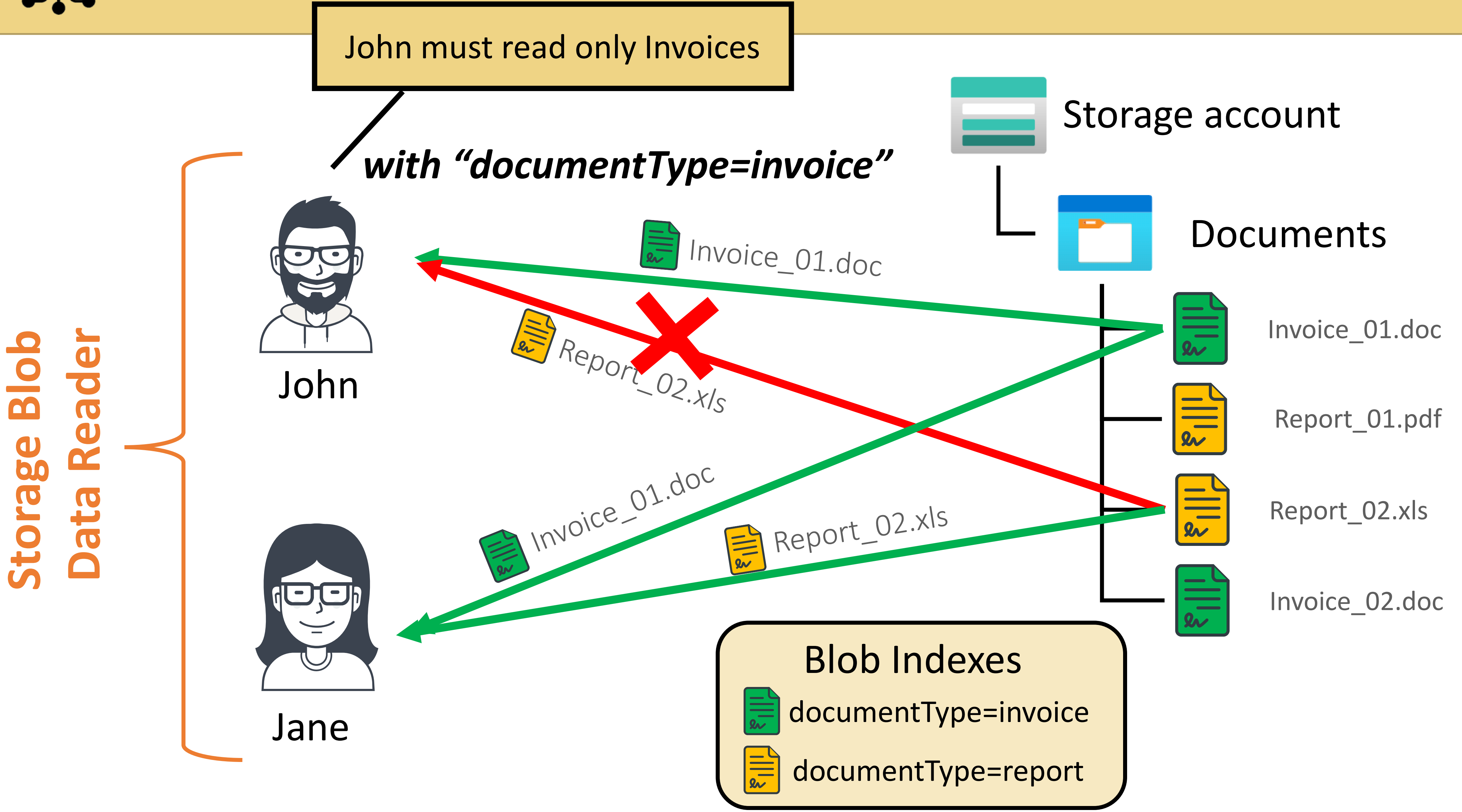
R(A)BAC in Star Wars



trilogy = "original"

Azure **Attribute-Based Access Control (ABAC)** builds on Azure **RBAC** by adding **role assignment conditions** based on principal, resource and request attributes.

Scenario


John must read only Invoices
with "documentType=invoice"
Storage Blob Data Reader
John
Jane
Invoice_01.doc
Report_02.xls
Invoice_01.doc
Report_02.xls
Storage account
Documents
Invoice_01.doc
Report_01.pdf
Report_02.xls
Invoice_02.doc
Blob Indexes
documentType=invoice
documentType=report

Conditions

You can configure conditions on role assignments for **DataActions** to achieve these goals.

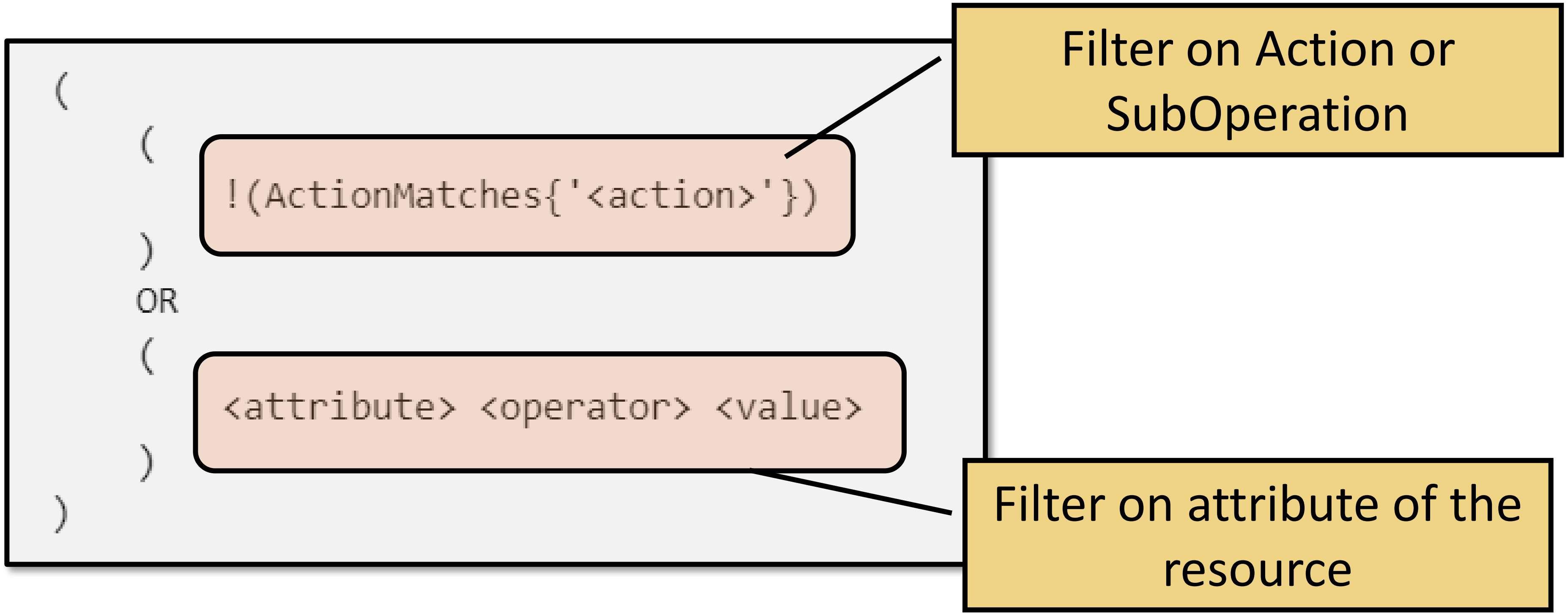
You can add conditions to **built-in** or **custom roles**.

The built-in roles on which you can use role-assignment conditions include:

- Storage Blob Data Reader
- Storage Blob Data Contributor
- Storage Blob Data Owner

Condition format and syntax

A condition is an additional check that you can optionally add to your role assignment to provide more fine-grained access control.



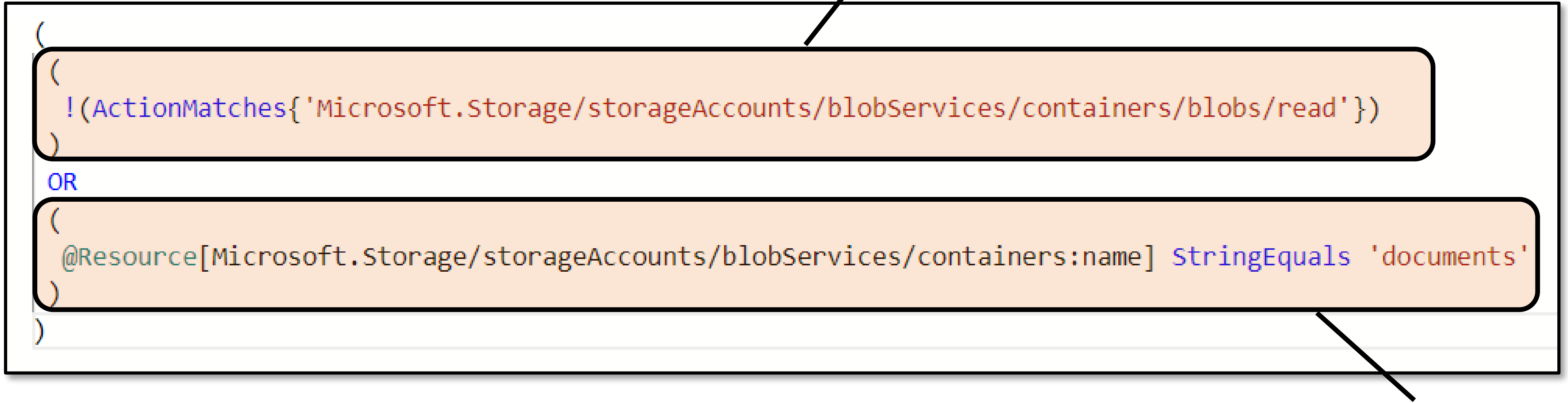
```
(
    (
        !(ActionMatches{'<action>'})
    )
    OR
    (
        <attribute> <operator> <value>
    )
)
```

Filter on Action or SubOperation

Filter on attribute of the resource

Condition sample

The action requested by the user is not “*reading a blob*”

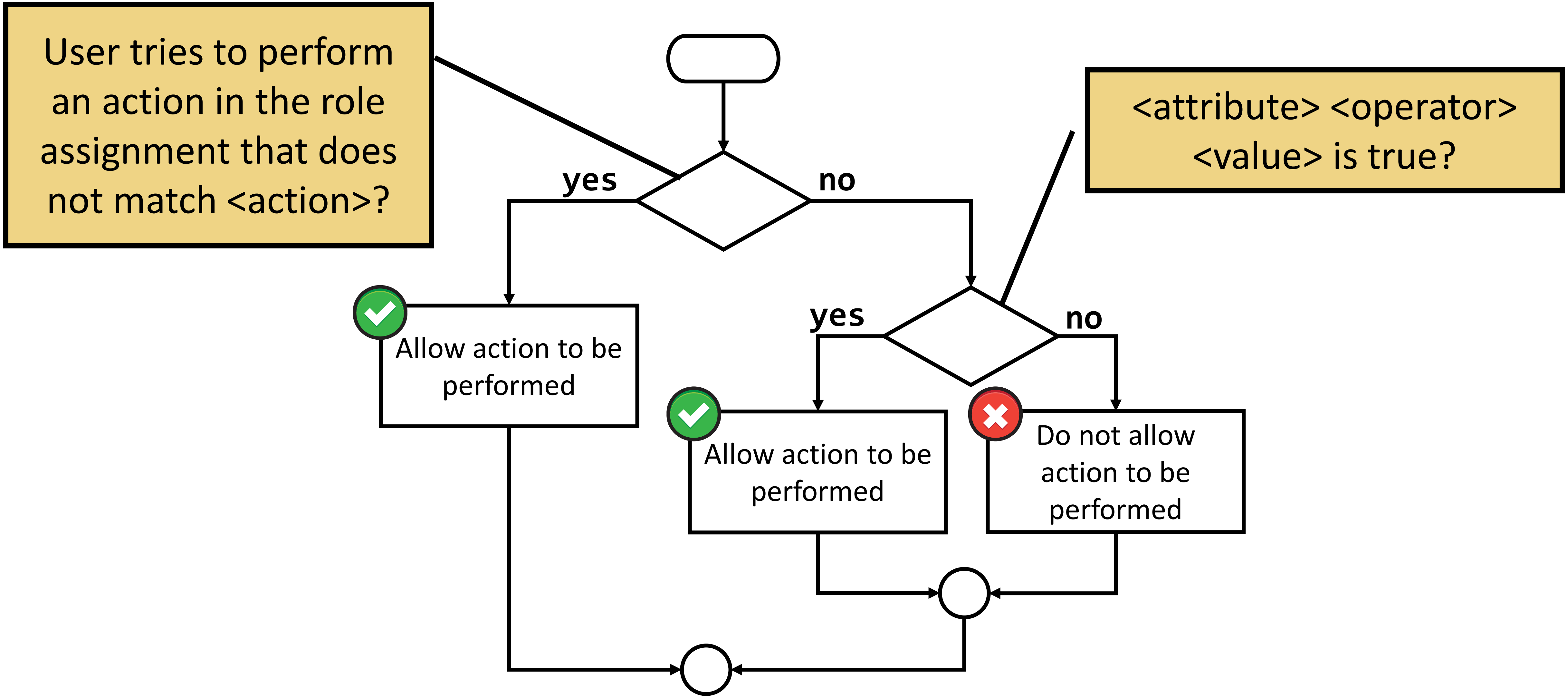


```
(
 (
  !(ActionMatches{'Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read'})
 )
 OR
 (
  @Resource[Microsoft.Storage/storageAccounts/blobServices/containers:name] StringEquals 'documents'
 )
)
```

The name of the container the user want to access to is “*documents*”

The identity can execute all the operation except the **read** operation or read the blobs in the **documents** container.

How a condition is evaluated



User tries to perform an action in the role assignment that does not match <action>?

<attribute> <operator> <value> is true?

yes

no

Allow action to be performed

yes

no

Allow action to be performed

Do not allow action to be performed

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Conclusions

RBAC vs ABAC

RBAC and ABAC are not competing technologies for access control.

Give access with RBAC and refine it with ABAC.

ABAC pros

Flexibility

Agility

Granularity

ABAC cons

Complexity

Only Blob Storage, Data Lake Gen2 and Storage Queue

GA for Standard Storage, preview for Premium Storage

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Thank you for your attention!!!

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