



Pivotal

# PCF Operations Workshop – Role Based Access Control

<Presenter>

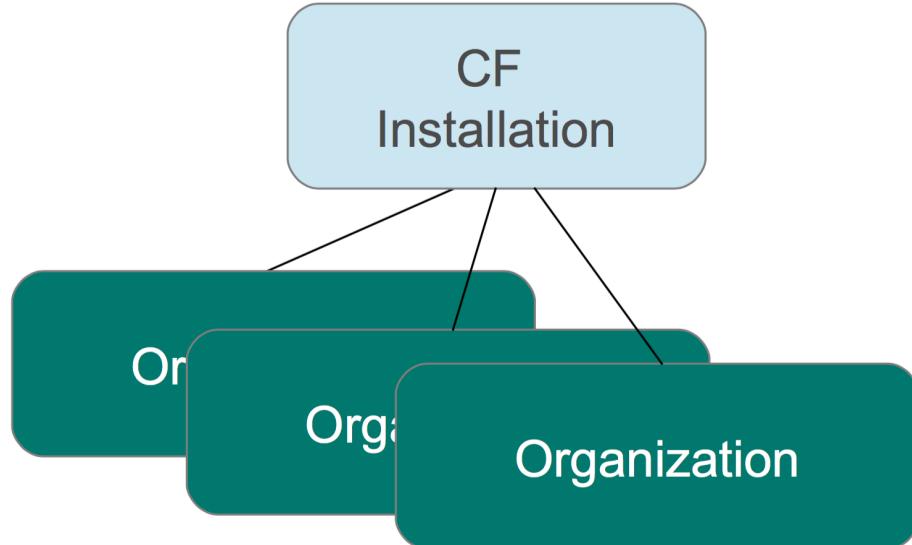
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# Role Based Access Control

- Organizations
- Spaces
- Users
- Roles

# Organizations

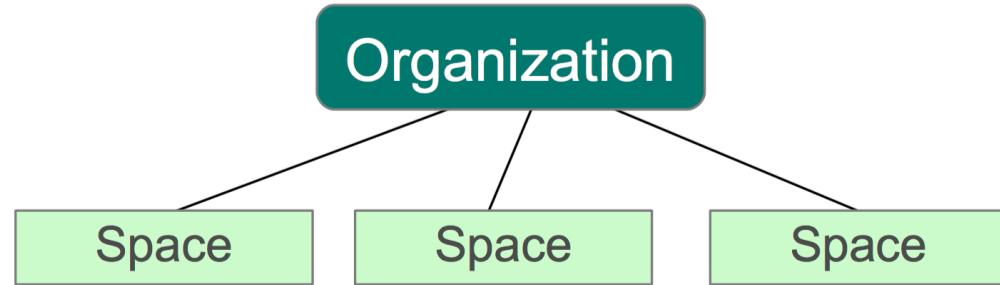
- Top-most administrative unit
- Any Cloud Foundry installation CF
- can have multiple organizations defined in any way
  - A logical way to organize users and resources
  - Typically a company, department, application suite or large project
- Designed to support many users working collaboratively



# Spaces

Organizations contains multiple spaces

- Default PWS space: *development*
- Spaces also can be defined in any way
- A logical way to organize users and resources
- For example, *staging* and *production*



# Spaces: Applications, Services and Users

- Applications and services are scoped to a space
- Provides a set of users access for:
  - Application development
  - Functionality and/or performance testing
  - Quality assurance
  - Deployment to production
  - Maintenance

*space: development*

*apps: myApp1, myApp2*

*services: MySQL*

*users: developerA, developerB*

# Organizations and Spaces with the cf CLI

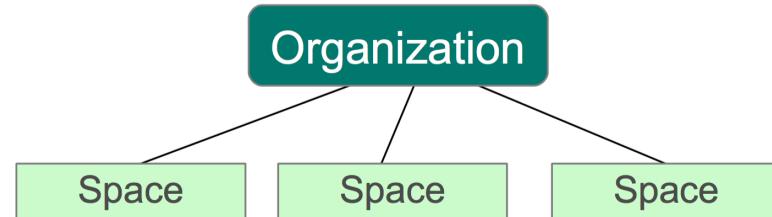
- You can use the cf CLI to work with organizations and spaces
- From `$ cf help`

```
  ORGS:
    orgs, o      List all orgs
    org          Show org info

    create-org, co
    delete-org
    rename-org

  SPACES:
    spaces       List all spaces in an org
    space        Show space info

    create-space
    delete-space
    rename-space
```



# Users and Roles



- Users are members of an organization
  - Usually they are operators or developers (not application end users)
  - Users are sent an email invite and asked to create an account
- Users have specific organization and space roles
  - Organization roles grant permissions in an organization
  - Space roles grant permissions in a particular space
  - A combination defines the user's overall permissions

# Organization Roles



- Organization Manager
  - Can do things like invite/manage users and roles, manage spaces, view application usage Organization Auditor
- Organization Auditor
  - View only access to all org and space info, settings, reports
- Billing Manager
  - Sets org spending limits, and works with invoices and payments
  - Only relevant for Cloud Foundry environments deployed with a billing engine

# Space Roles



- Space Manager
  - Can invite/manage users, enable features for a given space
  - Can manage applications and services in a space
- Space Auditor
  - View only access to all space information, settings, reports, logs
- Space Developer
  - Can create, delete, manage applications and services, full access to all usage reports and logs

# Users and Roles with Apps Manager

- Invite members and assign roles with Apps Manager

The screenshot shows the Pivotal Web Services Apps Manager interface for the organization 'sbyrnes-org'. The left sidebar includes links for Org, Spaces (development), Marketplace, Docs, Support, Tools, Blog, and Status. The main area displays the organization summary: 'sbyrnes-org' (1 Space, 1 Domain, 2 Members). It shows a quota of 37% (768 MB of 2 GB Limit) and a link to 'Increase Quota'. A red box highlights the 'Invite New Members' section, which lists two members: 'sbyrnes@pivotal.io' and 'steveb@realopia.com'. For 'sbyrnes@pivotal.io', checkboxes are checked for 'ORG MANAGER' and 'ORG AUDITOR', while 'ORG BILLING MANAGER' is unchecked. For 'steveb@realopia.com', the 'Remove User' link is visible. To the right, 'ORG ROLES' are defined: 'ORG MANAGER' (can invite users and manage user roles), 'BILLING MANAGER' (can edit the billing account and payment information), and 'ORG AUDITOR' (has read-only access to org information and reports). The bottom of the screen shows a windowed Mac OS X desktop with multiple tabs open.

MEMBER	ORG MANAGER	ORG BILLING MANAGER	ORG AUDITOR
sbyrnes@pivotal.io	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
steveb@realopia.com Remove User	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**ORG ROLES**

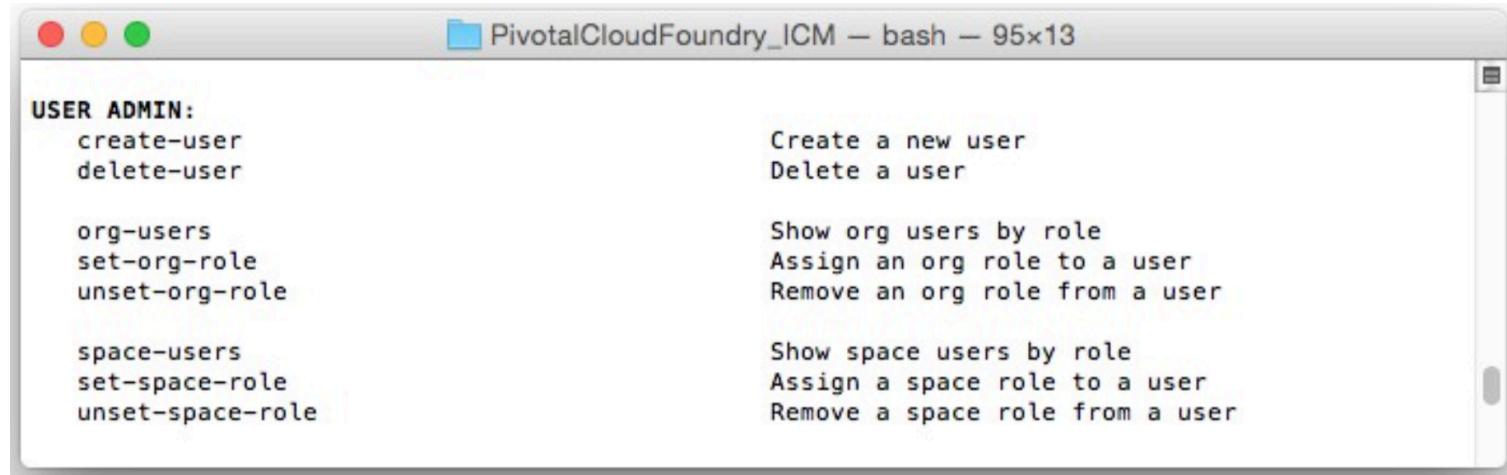
**ORG MANAGER**  
Can invite users and manage user roles in the org and all spaces

**BILLING MANAGER**  
Can edit the billing account and payment information

**ORG AUDITOR**  
Has read-only access to org information and reports

# Users and Roles with the CLI

- You can use the cf CLI to work with users and roles
- From \$ cf help



```
USER ADMIN:
  create-user           Create a new user
  delete-user          Delete a user

  org-users            Show org users by role
  set-org-role         Assign an org role to a user
  unset-org-role       Remove an org role from a user

  space-users          Show space users by role
  set-space-role       Assign a space role to a user
  unset-space-role     Remove a space role from a user
```

# Roles when Creating a Space

- Creating a space adds new roles for the organization manager in the new space
  - SpaceManager
  - SpaceDeveloper



```
greylag:PivotalCloudFoundry_ICM sbyrnes$ cf create-space "labtest"
Creating space labtest in org sbyrnes-org as sbyrnes@pivotal.io...
OK
Assigning role SpaceManager to user sbyrnes@pivotal.io in org sbyrnes-org / space labtest as sbyrnes@pivotal.io...
OK
Assigning role SpaceDeveloper to user sbyrnes@pivotal.io in org sbyrnes-org / space labtest as sbyrnes@pivotal.io...
OK

TIP: Use 'cf target -o sbyrnes-org -s labtest' to target new space
greylag:PivotalCloudFoundry_ICM sbyrnes$
```

# The Administrator User



- Special Administrator user / role defined
  - Defined for the Cloud Foundry installation
  - Separate from users defined at organization / space
- Several **cf** commands restricted to Administrator only
  - Setting organization and space quotas
  - Defining security groups
  - Administering services
  - Adding, modifying and removing user accounts
- Use without the right role, the cf CLI returns:

```
Server error, status code: 403, error code: 10003, message: You are not  
authorized to perform the requested action
```