

# Cloud Native Java with Spring Cloud Services

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@ATLSpring

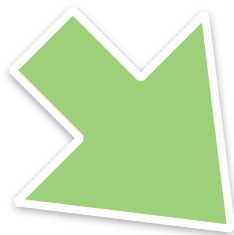
**meetup.com/AtlantaCloudFoundry**  
@ATLCFMeetup

# Pivotal™

## ATLANTA

[pivotal.io/careers](https://pivotal.io/careers)

vmware®



Pivotal™

# You might have heard something about...



Cloud  
Native  
Architecture

NETFLIX | OSS

CLOUD  FOUNDRY

# Spring Cloud



## Demo

# Pivotal Spring Cloud Services



ease of use



security



reliability

# Lowering the barrier to entry

Creating a Spring Cloud server

1. create a Spring Boot app
2. add Spring Cloud starters
3. add `@EnableXxxxServer`
4. add configuration
5. deploy and manage



1. `cf create-service`



# Lowering the barrier to entry

Creating a Spring Cloud client application

1. create a Spring Boot app
2. add Spring Cloud starters
3. add configuration
  - Eureka-first or config-first bootstrapping?

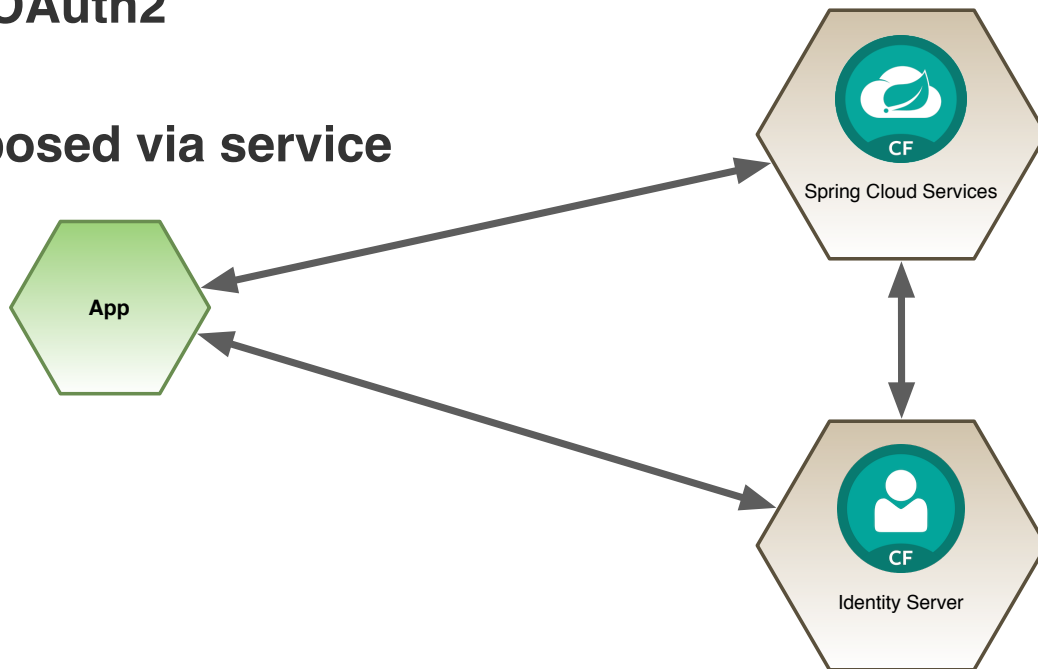


1. create a Spring Boot app
2. add Spring Cloud Services starters
3. `cf bind-service`

# Securing access

Services are secured with OAuth2

OAuth2 credentials are exposed via service bindings



# Reliability

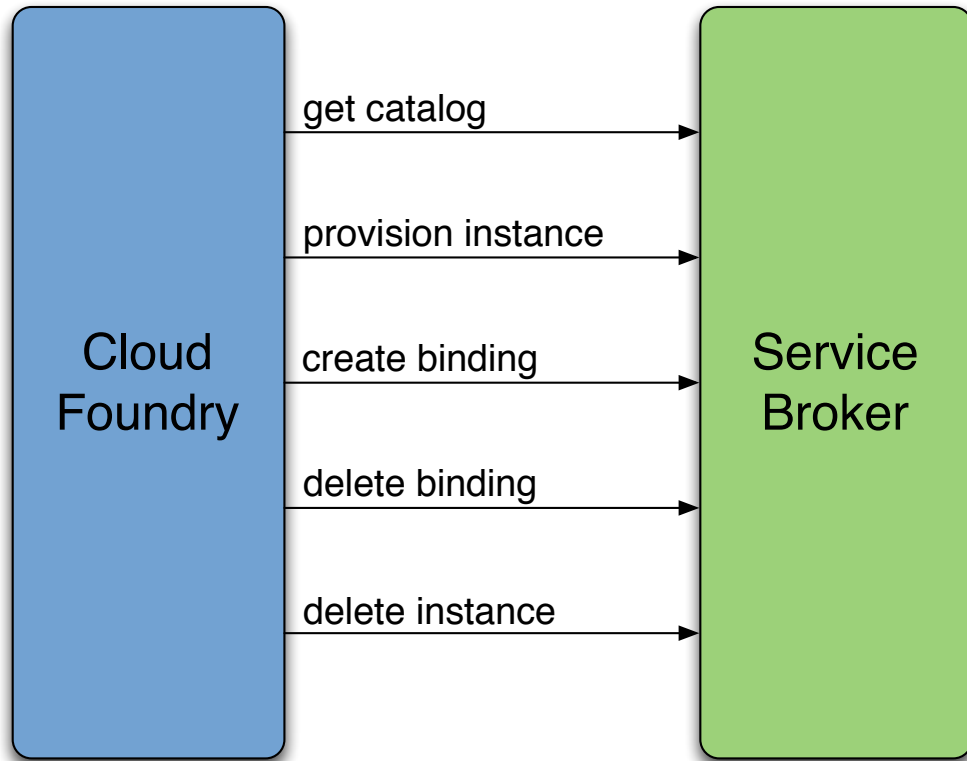
High availability and health management  
are provided by the platform



# Service Brokers

Service brokers extend Cloud Foundry to provide resources that can be consumed by applications

<http://docs.cloudfoundry.org/services/>



# Services Marketplace

## Marketplace



### App Autoscaler

Scales bound applications in response to load



### RabbitMQ

RabbitMQ is a robust and scalable high-performance multi-protocol messaging broker.



### MySQL for Pivotal Cloud Foundry

MySQL service for application development and testing



### Circuit Breaker

Circuit Breaker Dashboard for Spring Cloud Applications



### Config Server

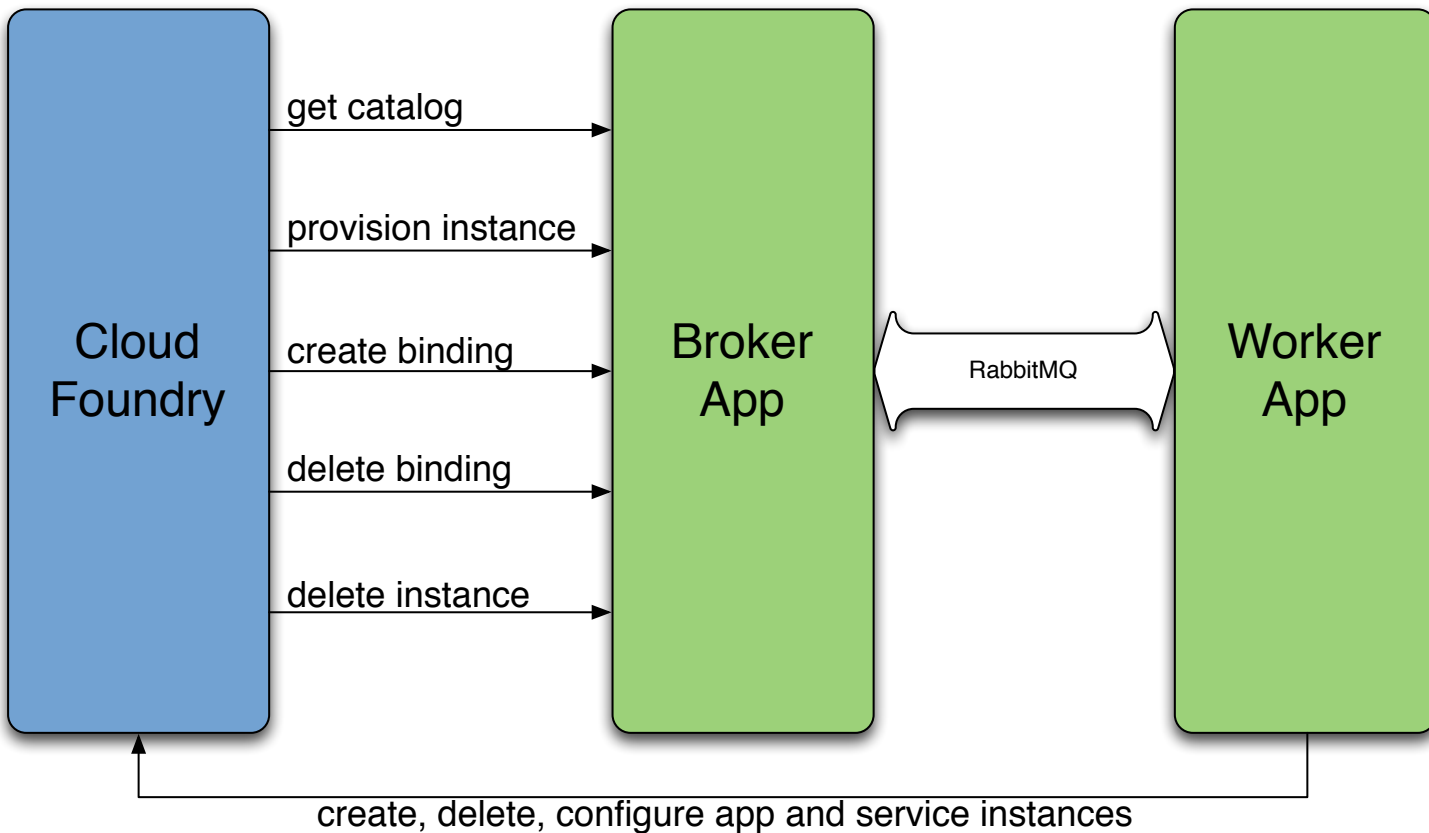
Config Server for Spring Cloud Applications



### Service Registry

Service Registry for Spring Cloud Applications

# Spring Cloud Services Broker



# Things we used to build our broker

Spring Boot

Spring Cloud Netflix

Spring Cloud Config Server

Spring Cloud Connectors

Spring Security

Spring Security OAuth2

Spring Data JPA

Spring AMQP

Spring Boot CF Service Broker

Cloud Foundry Java Client



# Config Server





# What you get

## Service

- deploys a Spring Cloud Config server for each service instance provisioned
- git backend
- search paths within config repo
- basic authentication to repo

## Security

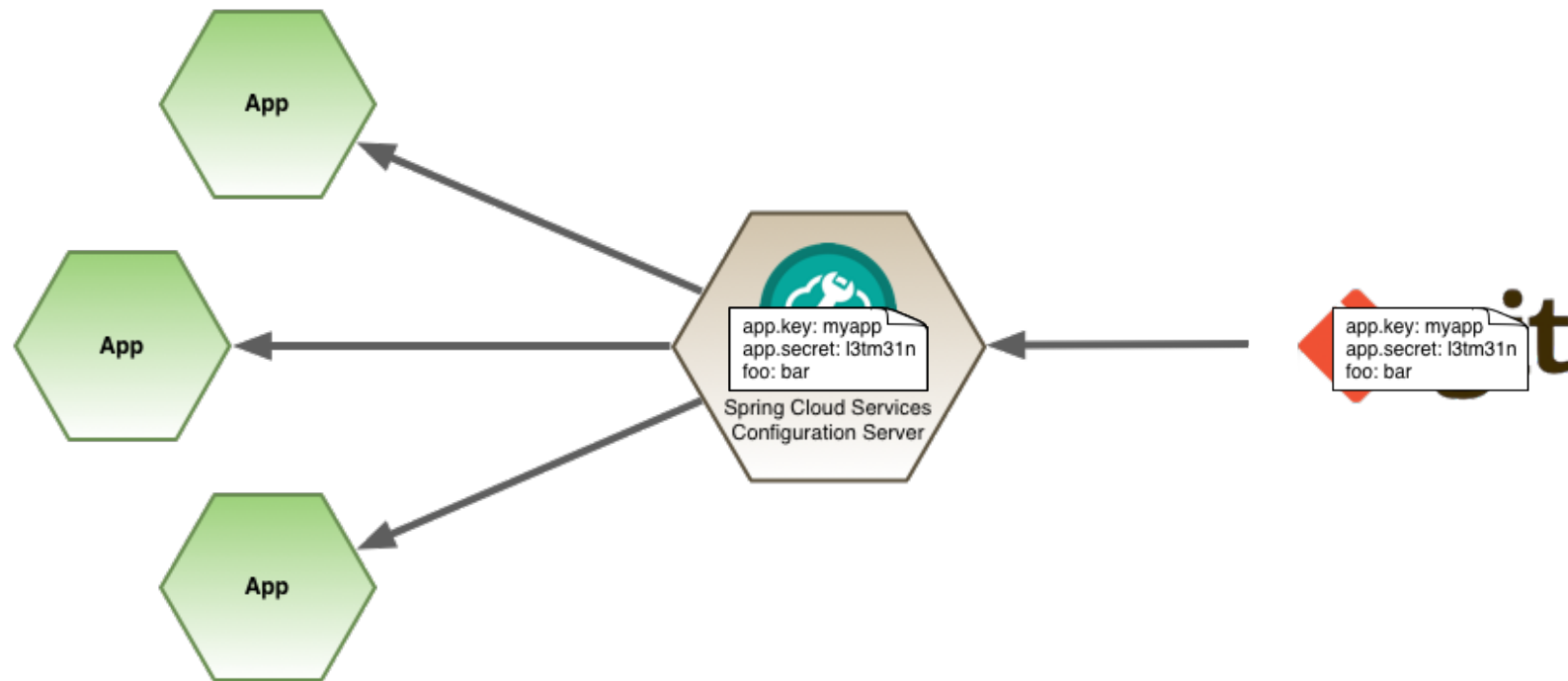
- only bound applications are able to see configuration

## Client Applications

- starter automatically adds a property source configured for the config server



# Configuration Server Flow



# Configuration Server



## Demo

# Service Registry



# What you get

## Service

- deploys a Spring Cloud Netflix Eureka server for each service instance provisioned

## Security

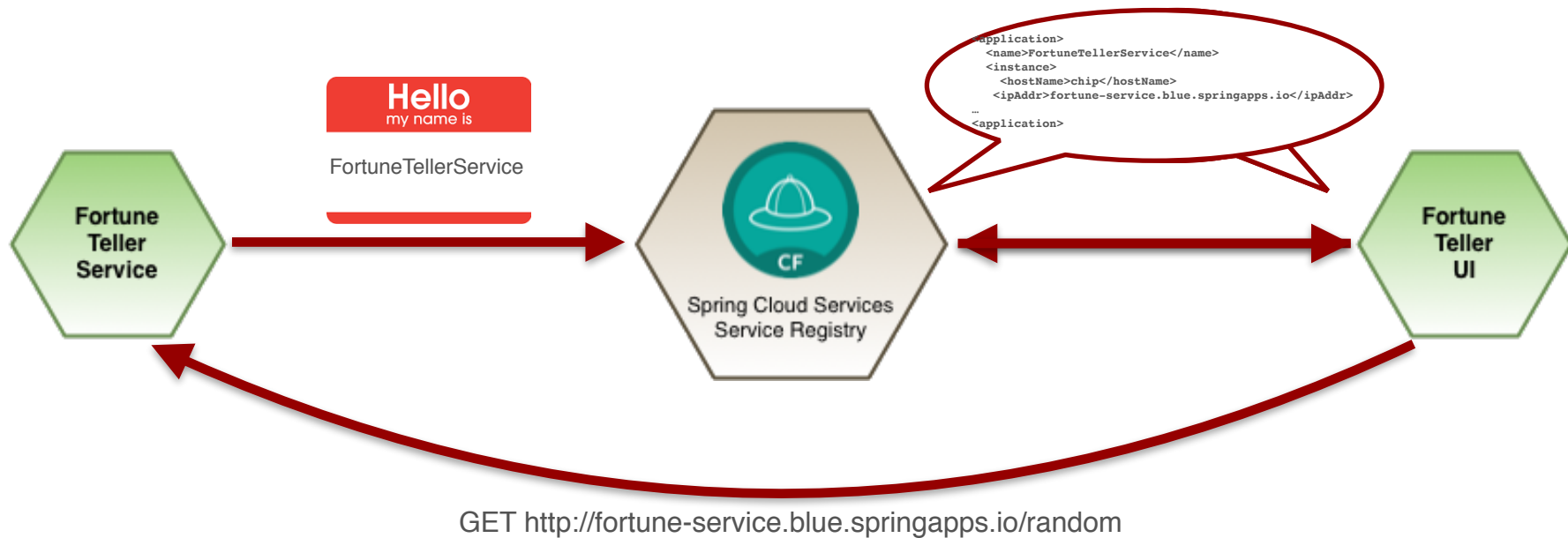
- only the application that originally creates a registration is allowed to update or remove that registration
  - prevents Man In The Middle attacks against the Registry

## Client Applications

- starter automatically configures a DiscoveryClient



# Service Registry Flow



# Service Registry



## Demo

# Circuit Breaker Dashboard





# What you get

## Service

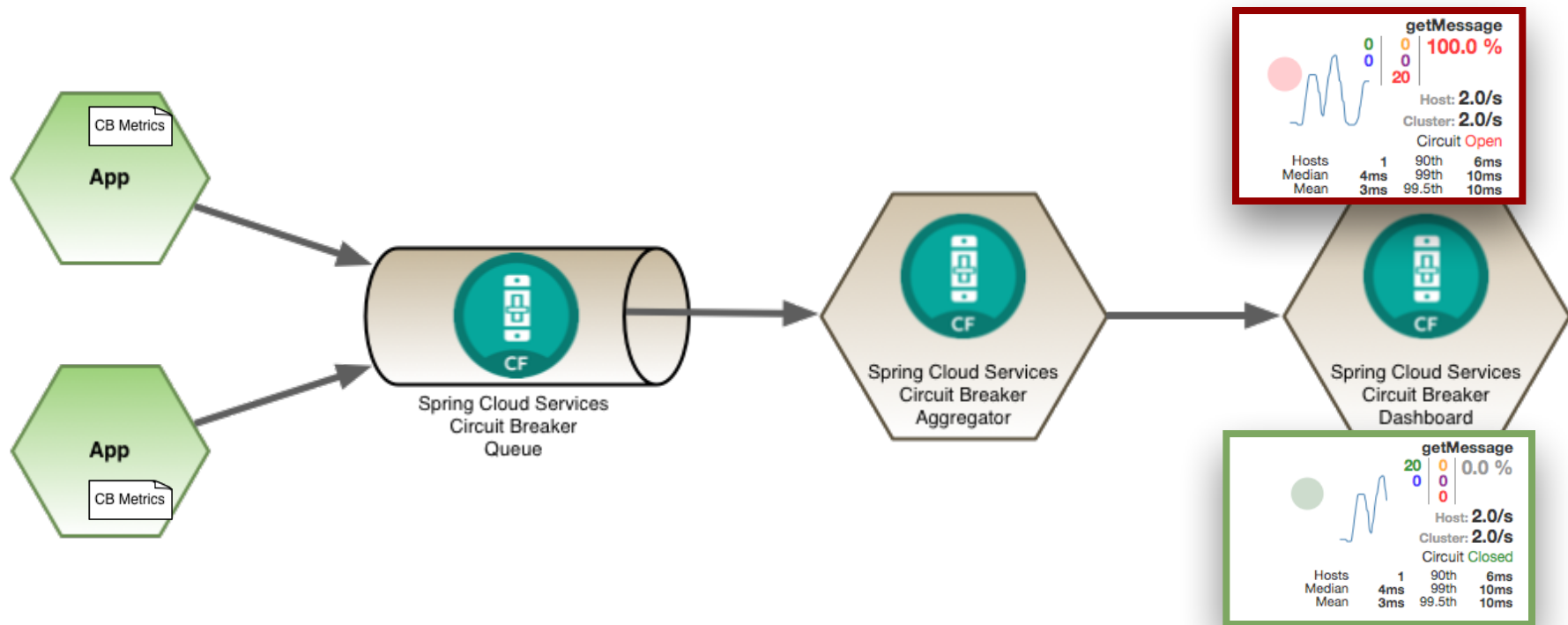
- deploys for each service instance provisioned:
  - Spring Cloud Netflix Hystrix dashboard
  - Spring Cloud Netflix Turbine server
  - Pivotal RabbitMQ service instance

## Client Applications

- starter automatically configures a Turbine AMQP client



# Circuit Breaker Dashboard Flow



```
@Configuration
public class CloudConfig extends CloudConnectorsConfig {
    @Bean
    @HystrixConnectionFactory
    public ConnectionFactory hystrixConnectionFactory() {
        return connectionFactory().hystrixConnectionFactory();
    }
}
```

```
@Configuration
public class RabbitConfig extends AbstractCloudConfig {
    @Bean
    @Primary
    public ConnectionFactory rabbitConnectionFactory() {
        return connectionFactory().rabbitConnectionFactory();
    }
}
```

# Circuit Breaker Dashboard



Demo

# Service Instance Dashboard



Spring Cloud Services

## Service Instances

Org	Space	Instance Name	Service	Version	Status	Bound Apps
devnexus	fortune-teller	<a href="#">circuit-breaker</a>	p-circuit-breaker-dashboard	2	READY	<a href="#">1</a>
devnexus	fortune-teller	<a href="#">config-service</a>	p-config-server	2	READY	<a href="#">2</a>
devnexus	fortune-teller	<a href="#">service-registry</a>	p-service-registry	2	READY	<a href="#">2</a>
devnexus	numbers	<a href="#">circuit-breaker-dashboard</a>	p-circuit-breaker-dashboard	2	READY	<a href="#">1</a>
devnexus	numbers	<a href="#">config-server</a>	p-config-server	2	READY	<a href="#">1</a>
devnexus	numbers	<a href="#">service-registry</a>	p-service-registry	2	READY	<a href="#">2</a>

# Pivotal Spring Cloud Services



ease of use



security



reliability

# Questions



# Learn More

- [network.pivotal.io](http://network.pivotal.io)
- [run.pivotal.io](http://run.pivotal.io)
- [spring.io](http://spring.io)
- [github.com/royclarkson/spring-cloud-netflix-samples](https://github.com/royclarkson/spring-cloud-netflix-samples)
- [github.com/spring-cloud-samples/fortune-teller](https://github.com/spring-cloud-samples/fortune-teller)
- [meetup.com/AtlantaSpring](https://meetup.com/AtlantaSpring)
- [meetup.com/AtlantaCloudFoundry](https://meetup.com/AtlantaCloudFoundry)
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# template stuff

# STOP! Download Fonts Now.

**PLEASE DOWNLOAD AND INSTALL THESE FONTS BEFORE CREATING YOUR PRESENTATION.** You can download the fonts here...

<https://www.dropbox.com/s/na8jewnsp8dp659/SpringOne-2015-Fonts.zip?dl=0>

FFonts included in the ZIP file:

- Proxima Nova (body text)
- Domine (included but no longer needed)

<http://www.fontspring.com/support/installing/how-do-i-install-fonts-on-my-mac>

<http://www.fontspring.com/support/installing/how-do-i-install-fonts-on-my-windows-pc>

# Contents

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  - Logos
  - Event logos and icons
  - Project icons
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  - Bar chart
  - Line chart
  - Table

# USING THIS TEMPLATE

# Intro

This template has been carefully prepared with specific layouts, colors, fonts and more. This short intro will outline the basic components of this template.

**Note:** This template includes slides with approved color palette, fonts, logos and clip art. It's a good idea to keep these slides in order to quickly access these assets then delete the slides when you have finished creating your presentation.

# Inserting New Slides and Applying Layouts

- To create different types of slides, select New Slide and apply desired Layout
- If you make formatting changes to a slide and want to reapply the default settings, click Reset

# Layouts

There are 13 layouts

- Title Only – Standard slide with no text content box, do not use for section title
- Title and Content (1 Col) – Standard slide with title and text content box
- Title and Content (2 Col) – Standard slide with title and two text content boxes
- Comparison – Standard slide with title and two text content boxes with subtitles
- Section Title – Use between sections
- No text
- Table – Quick and easy way to get a table with brand colors
- Bar Chart – Quick and easy way to get a bar chart with brand colors
- Line Chart – Quick and easy way to get a line chart with brand colors
- Pie Chart – Quick and easy way to get a pie chart with brand colors
- Code Formatting – Quick and easy way to get preferred code formatting
- **Title Slide** – Presentation title with author name and contact info. Use only once in presentation.
- Completely blank – A totally blank, white slide. Use sparingly.

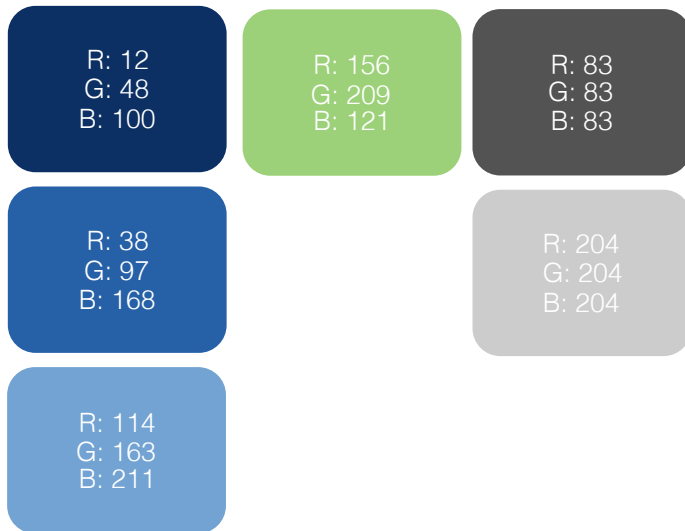
# Title Proxima Nova Bold (30pt)

- All body text is Proxima Nova Regular
- Subhead (18pt)
  - Level Two (18pt)
    - Level Three (18pt)
      - Level Four (18pt)
- Line spacing is set in master slides

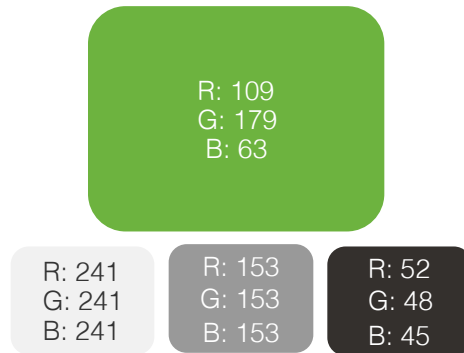


# Brand Colors

## SpringOne 2GX 2015 Theme Colors



## Spring Brand Colors



# Code Slide

```
// This is Arial: 18 pt or higher please
public class TransferServiceImpl implements TransferService {
    public TransferServiceImpl(AccountRepository ar) {
        this.accountRepository = ar;
    }
    ...
}
```

**SPRINGONE2GX**

WASHINGTON, DC

# Learn More. Stay Connected.

@springcentral

Spring.io/video

<Your CTA>

<Related Session>

# Safe Harbor Statement

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Remove this text box before presenting.

# LOGOS & ICONS

# Logos



# Event Logos and Icons



# Spring Project Icons



Spring  
Framework



Spring  
Security



Spring  
Data



Spring  
Batch



Spring  
Integration



Spring  
Reactor



Spring  
AMQP



Spring  
Hateoas



Spring  
Mobile



Spring  
Android



Spring  
Social



Groovy



Spring  
Web Services



Spring  
Web Flow



Spring  
XD



Spring  
Boot



Spring  
LDAP



Grails

PNG and PSD files for all Spring projects can be found here...

<https://www.dropbox.com/sh/5rbbt8v6evvm7xm/AAAZmhgf0zglGHZUWYhPvojFa?dl=0>



# Spring Tool Suite Icons

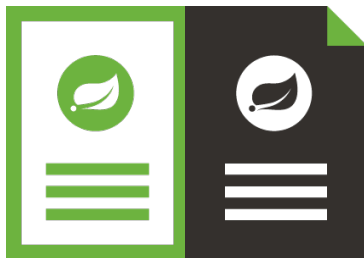


Spring Tool Suite



Groovy / Grails Tool Suite

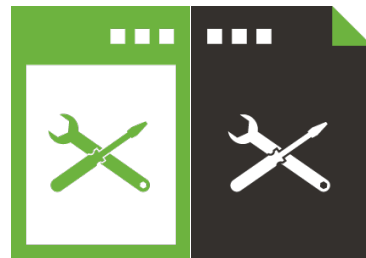
# Spring Document Icons



Spring Framework



Support



Tools



Guides



Tutorials



Reference App

# Additional Spring Icons



Continuous  
Integration



Issues



Metrics



Forums /  
Discussion



Blog



@



All



Author



Broadcast



Date



Engineering



News  
Event



Releases



Apple



Linux



Windows



Professional  
Support



Community  
Support



Location

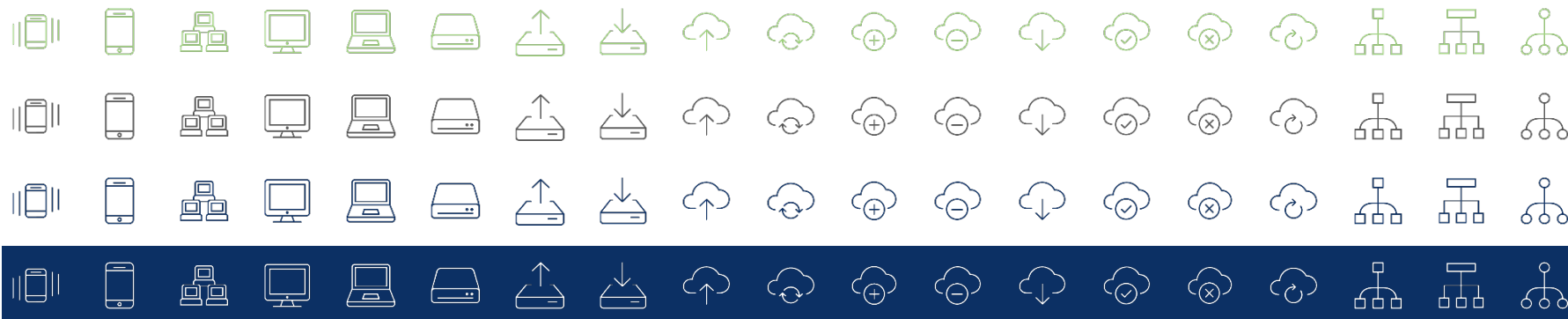
# Icon Guidelines

- These icons can be used when Spring icons are not appropriate.
- Max icon size is 2.08 inches – anything larger and the icon will be blurry
- Icons are transparent and can be placed over images and other objects
- To use an icon, simply choose, copy and paste
- 200x200 PNG files can be found here...  
<https://www.dropbox.com/sh/wy65b4l5t4fv9b4/AAD1LMHcOtwJSTbNu23zqywka?dl=0>



Max icon size:  
2.08 inches

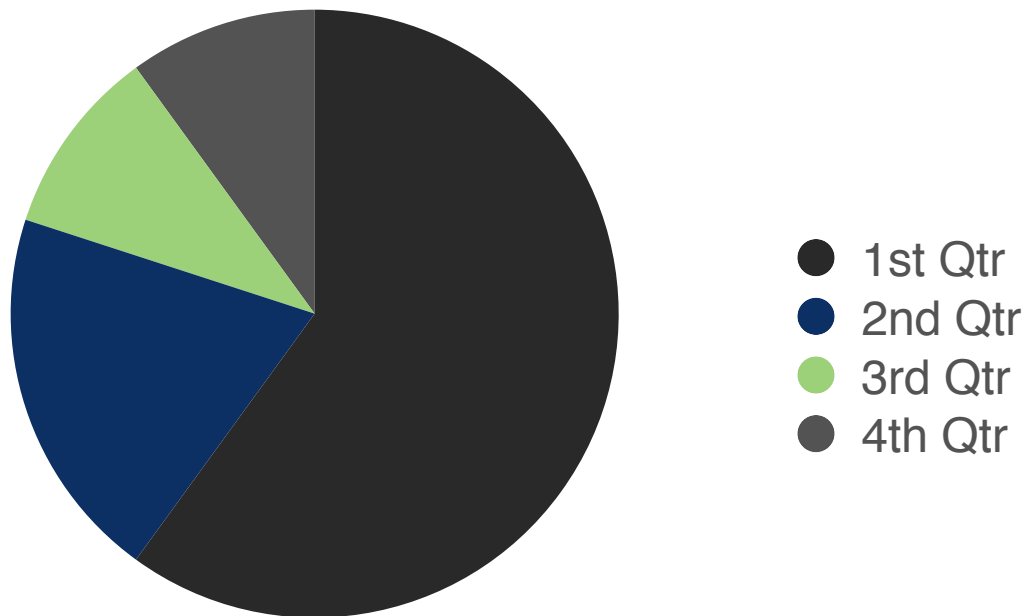






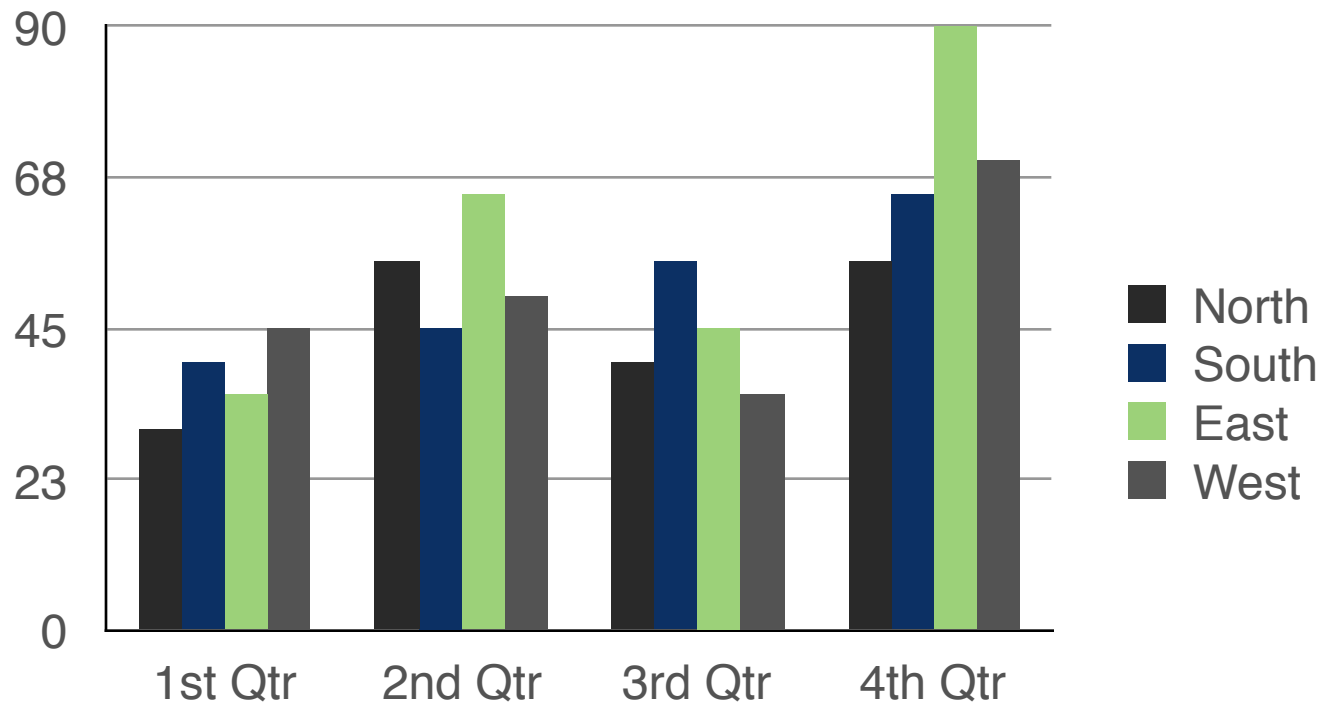
# CHARTS & TABLES

# Sample Pie Chart

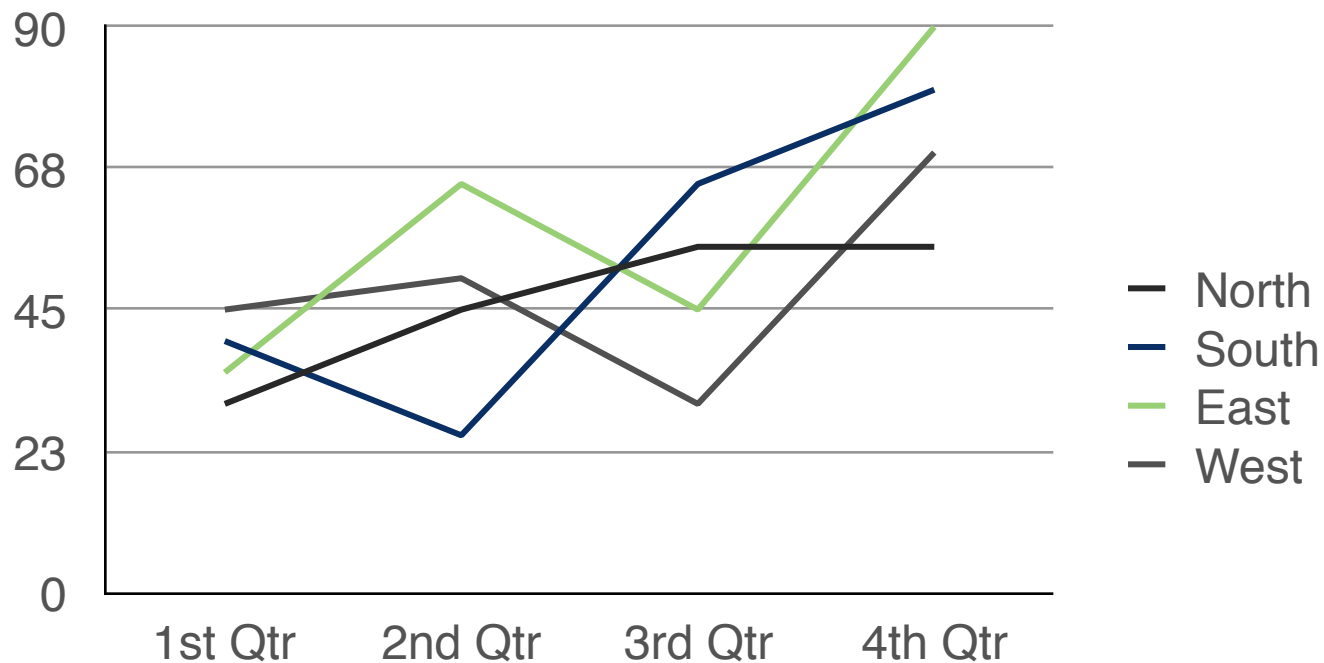




# Sample Bar Chart



# Sample Line Chart



# Sample Table

	2007	2008	2009	2010
<i>Category 1</i>	<b>2.4</b>	<b>6.4</b>	<b>4.1</b>	<b>6.6</b>
<i>Category 2</i>	<b>8.2</b>	<b>4.5</b>	<b>3.2</b>	<b>3.8</b>
<i>Category 3</i>	<b>4.6</b>	<b>3.2</b>	<b>1.9</b>	<b>9.6</b>
<i>Category 4</i>	<b>6.7</b>	<b>3.3</b>	<b>3.4</b>	<b>2.2</b>
<i>Category 5</i>	<b>4.3</b>	<b>5.6</b>	<b>7.1</b>	<b>3.4</b>