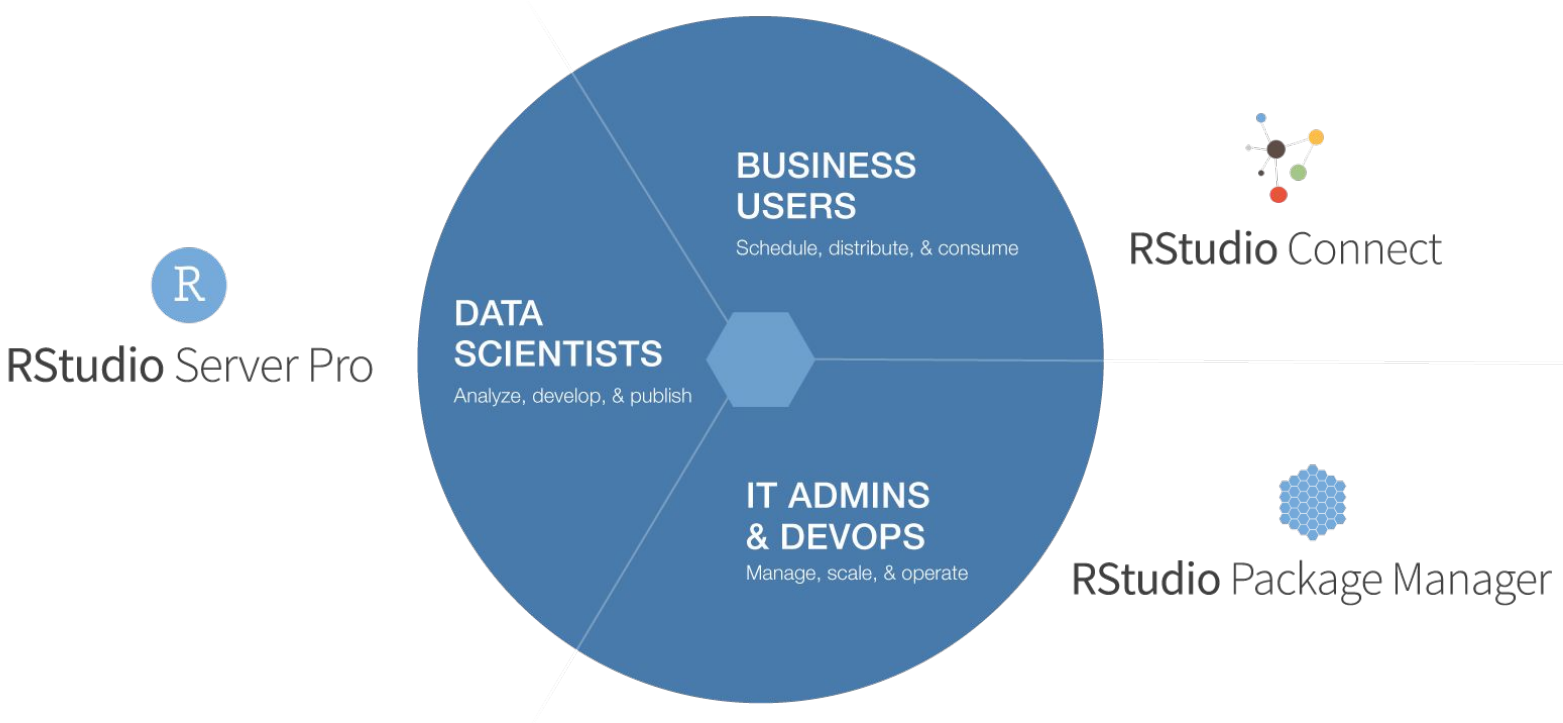
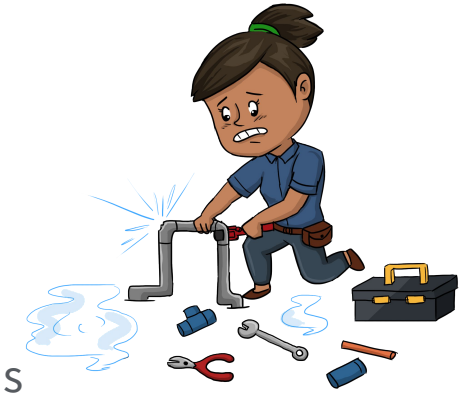
Automating the Delivery of Reproducible Data Products in R

Environment-based release patterns from DevOps

Solutions Engineering at RStudio



“R Admin” - Analytic Administrator Role



A data scientist who:

Onboards new tools, deploys solutions, supports existing standards

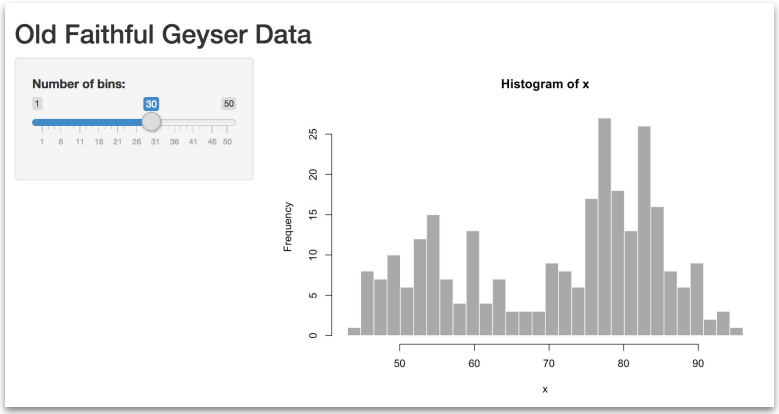
Works closely with IT to maintain, upgrade and scale analytic environments

Influences others in the organization to be more effective

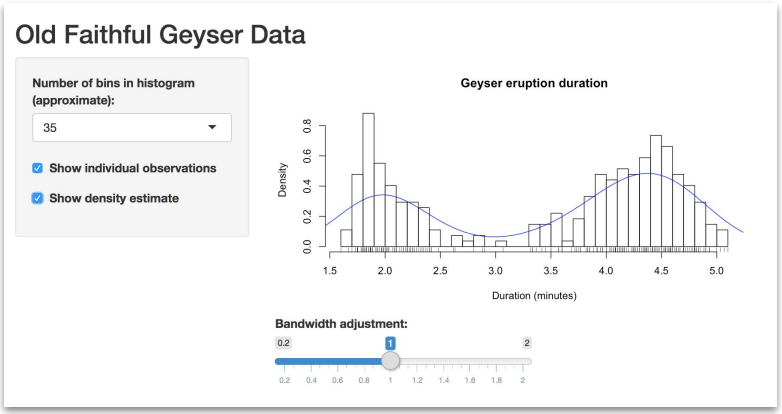
Passionate about making R a legitimate analytic standard within the organization

Check out Nathan Stephens on the RViews Blog - *Analytics Administration for R*

Automating the Delivery of Data Products



Version 1



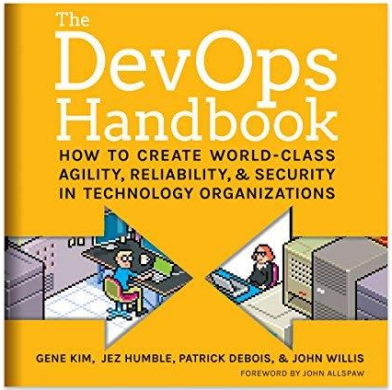
Version 2

DevOps Learning: Decouple **deployment** from **release**

- **Deployment** is any push of code to an environment (test, prod)
- **Release** is when that code (feature) is made available to users or customers

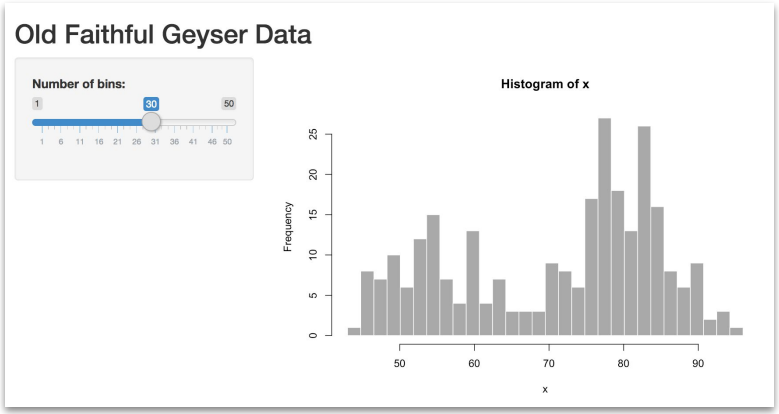
Deployment on demand and thoughtful release strategies allow more control (and more success) over the delivery of features to end users.

- Application-based release patterns (yesterday)
- **Environment-based release patterns** (today!)

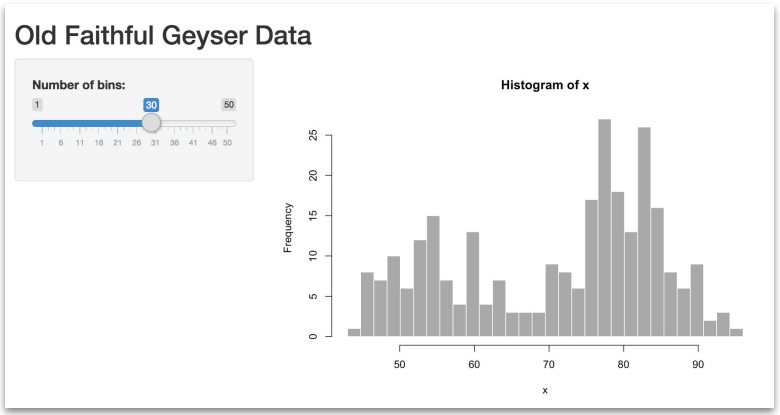


Environment-Based Release Patterns

Blue/Green Release Pattern

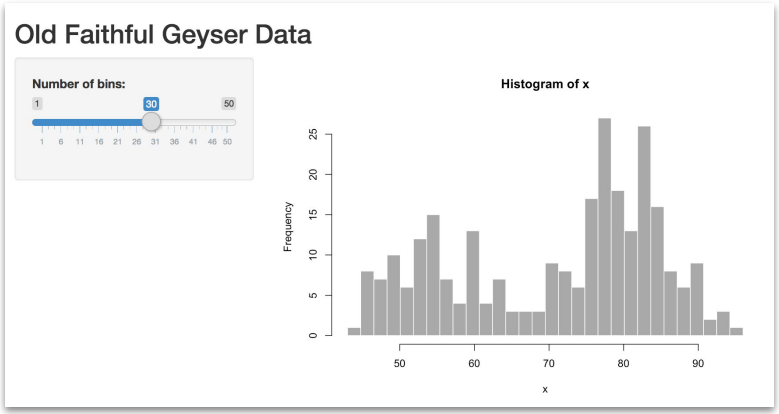


Production Blue
Serving user traffic

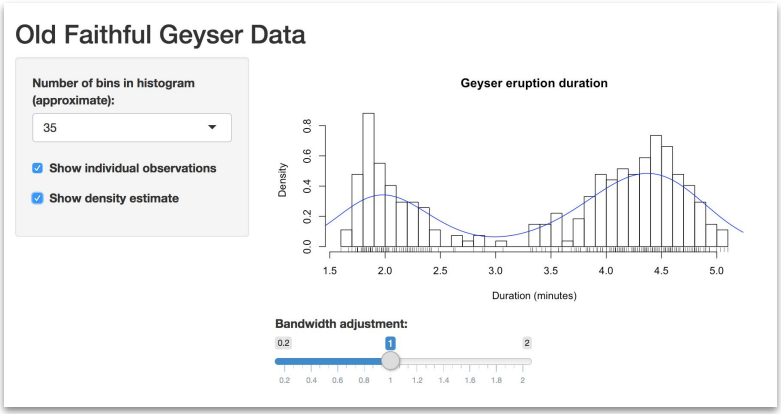


Production Green
Inactive

Blue/Green Release Pattern

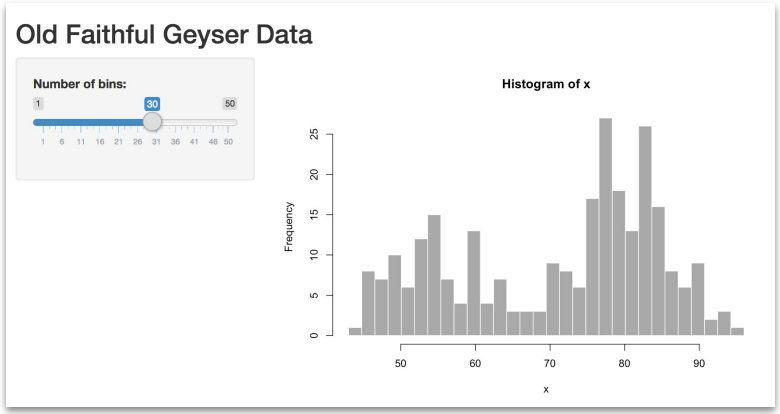


Production Blue
Serving user traffic

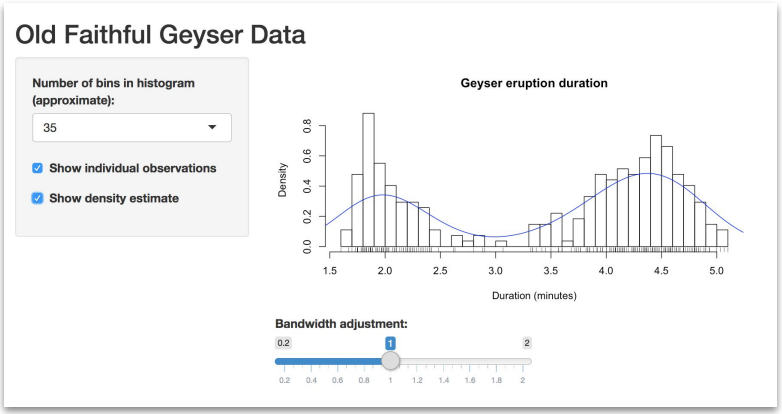


Production Green
Inactive - Staging

Blue/Green Release Pattern



Production Blue
Roll back if necessary



Production Green
Start serving user traffic

Blue/Green Environment Release Pattern

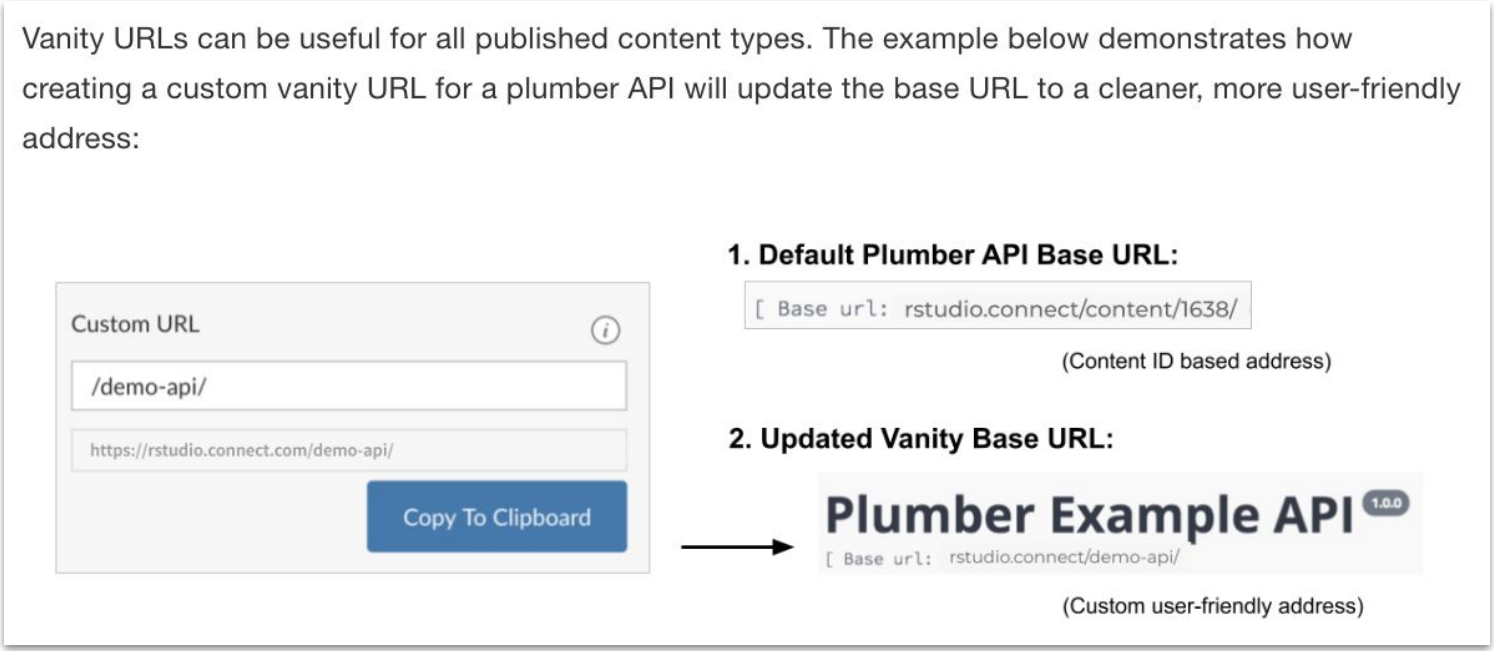
Pros: Require no changes to application code

In this pattern, we have two production environments: blue and green. At any time, only one of these is serving customer traffic

To release a new version of our service, we deploy to the inactive environment where we can perform our testing without interrupting the user experience. When we are confident that everything is functioning as designed, we execute our release by directing traffic to the blue environment. Thus blue becomes live and green becomes staging. Roll back is performed by sending customer traffic back to the green environment.

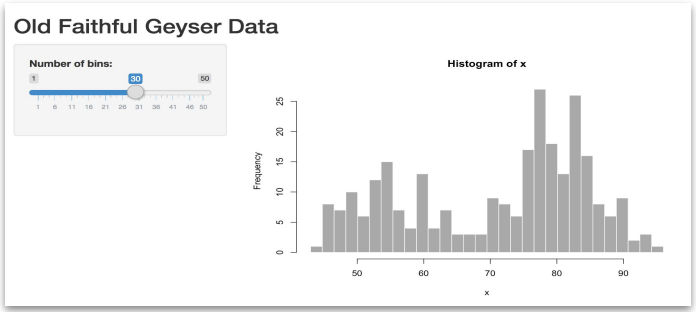
Blue/Green Release Implementation

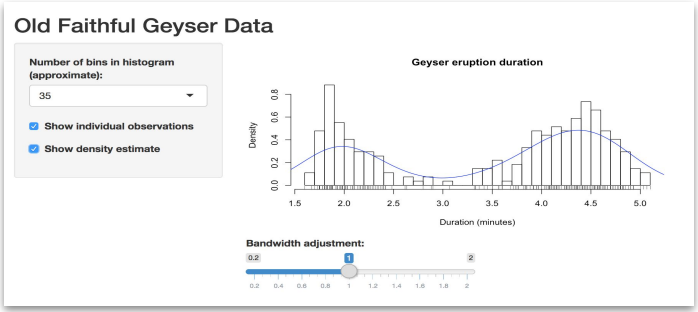
Does your environment support publishing to multiple destinations?



Blue/Green Release Implementation

1. Surface a single access point for your content
2. Assign a vanity URL to the original deployment location
3. Later assign it to a different piece of content on the same server





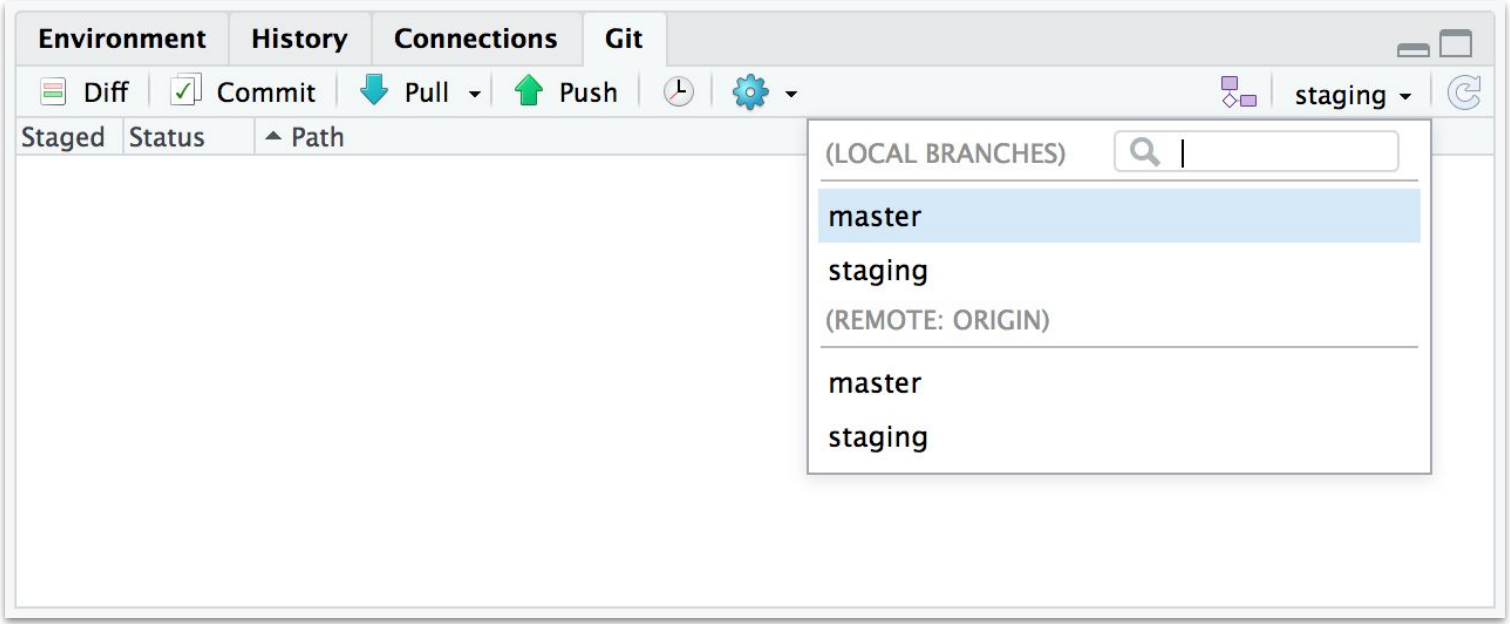
Vanity URL

Production Blue
Serving user traffic

Production Green
Inactive - Staging

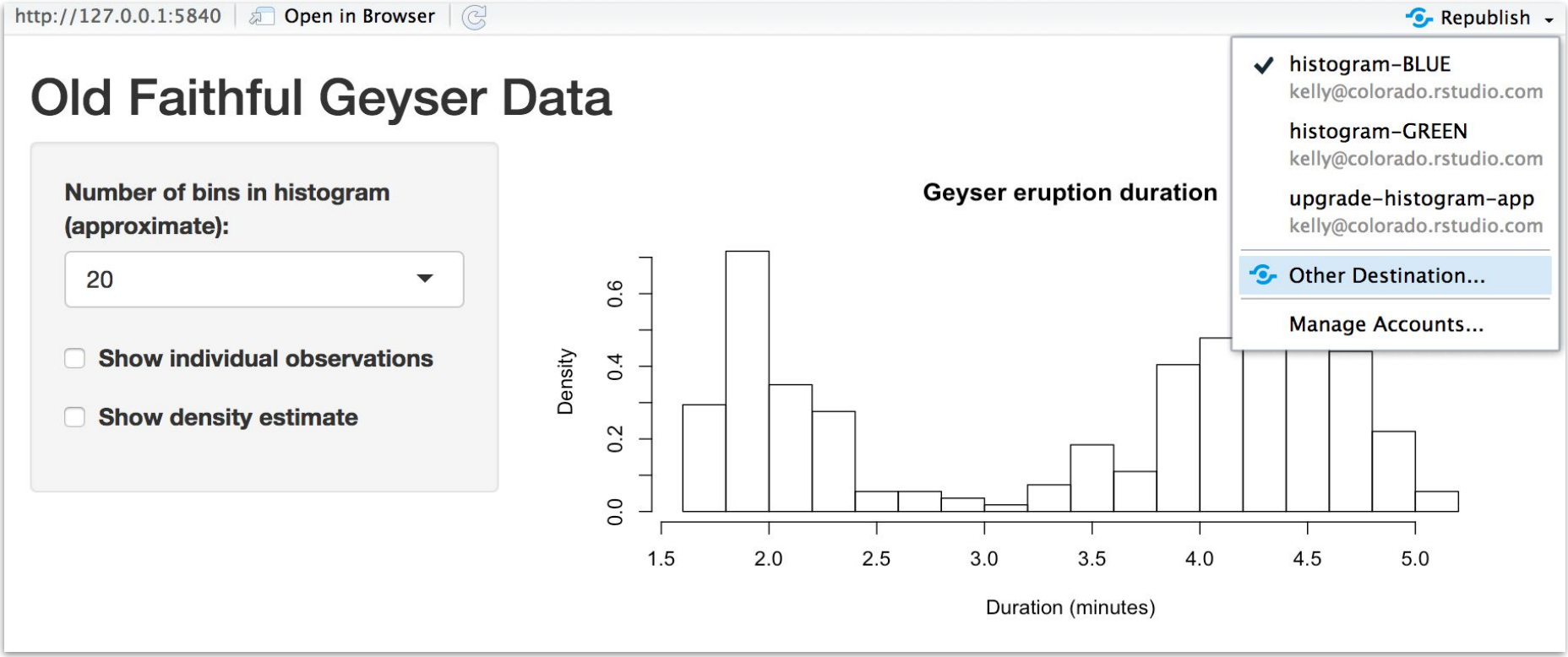
Implementation Recommendations

Git Branching Strategies: Beyond the master branch



Master (production) **Sprint-Branch (staging)**

Manually Publish to Multiple Locations



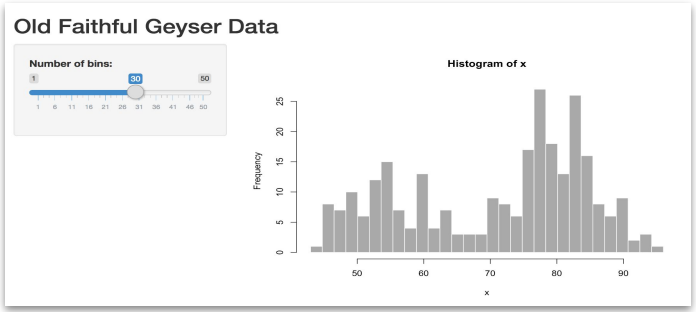
Automate Publishing to Multiple Locations

Git-Backed Content Deployment Demo

Manage the Vanity URL

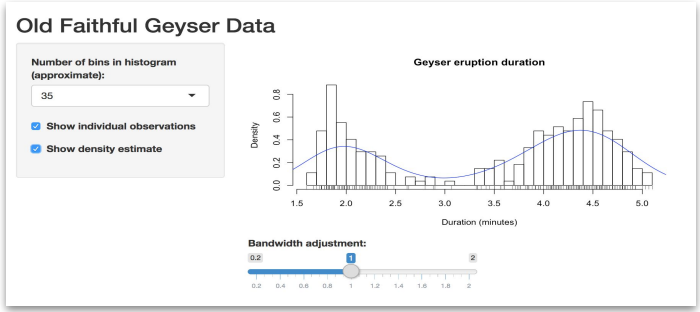
Two applications cannot share a single vanity URL at any given time

1. Use the Access settings panel to manually swap custom vanity URL assignments
2. (Future) Automate with the [RStudio Connect Content API]

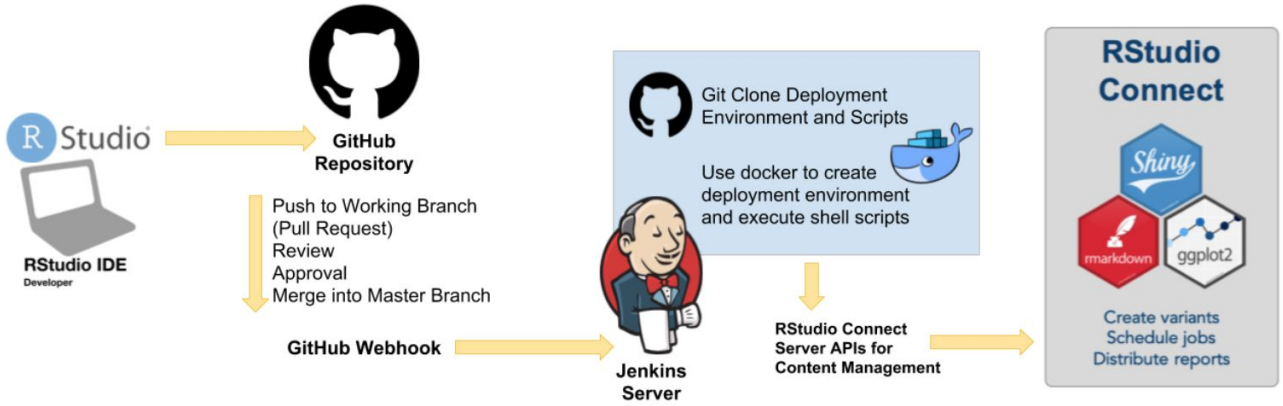


Production Blue
Rollback if needed

Vanity URL



Production Green
Start serving user traffic



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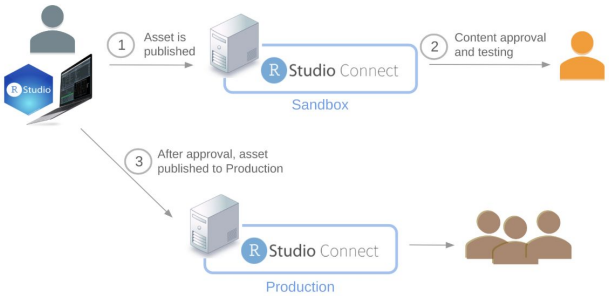
Multiple environments



Continuous integration