# WERA 1012

2021 CoCoRaHS IT Update

COLORADO CLIMATE CENTER

ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY

# Project Portfolio

Breaking CoCoRaHS down into ‘manageable’ chunks

# CoCoRaHS Portfolio

## Products (Tangible Output)

- www.cocorahs.org
- data.cocorahs.org
- api.cocorahs.org
- bulk.cocorahs.org
- cms.cocorahs.org
- maps.cocorahs.org
- Carto Data Sync
- QC Ticketing System
- Mobile Apps
- WERA Microsites
- DevOps Repositories and Pipelines
- Documentation

## Operations (Continuous)

- Observer Support
- Data User Support
- Coordinator Outreach
- CoCoSchools
- Blog
- YouTube
- Facebook
- Twitter
- Fundraising
- Product Maintenance

## Projects (Have Start and End Dates)

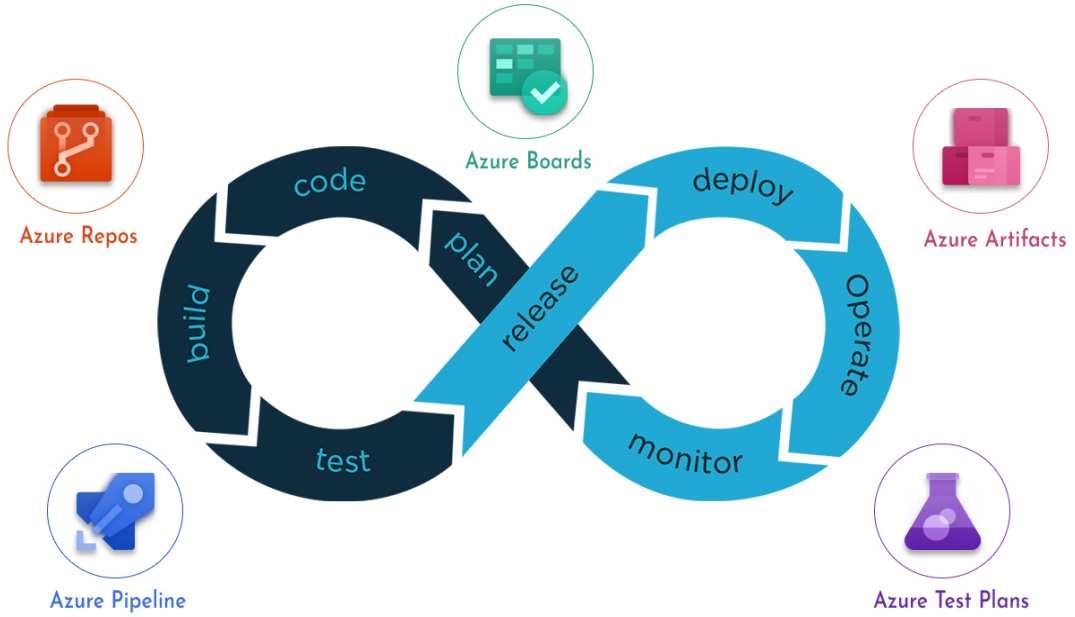
- Azure Migration
- AI for Earth
- Mapping
  - Angular Mapping App
  - Static Mapping
- Modernization Projects
  - Website User Interface Overhaul
  - API Expansion
  - Data Export Improvements
  - Identity Management
  - Mobile App Improvements
- Bulk Mailing List Integration
- March Madness
- Observer Recruitment & Retention
  - Targeted Facebook Ads
  - Online training events
- Data Schema Improvements
  - Metric Support
  - Internationalization
- Data User Outreach
  - LinkedIn for Non-profits
- Data flow pipelines

# Rearview Mirror

Where have we been?

# Migration All CoCoRaHS Cyberinfrastructure is running in Azure

# DevOps and Development Environment




## Introducing Azure DevOps

**Azure Boards**

Plan, track, and discuss work across teams, deliver value to your users faster.

**Azure Repos**

Unlimited cloud-hosted private Git repos. Collaborative pull requests, advanced file management, and more.

**Azure Pipelines**

CI/CD that works with any language, platform, and cloud. Connect to GitHub or any Git provider and deploy continuously to any cloud.

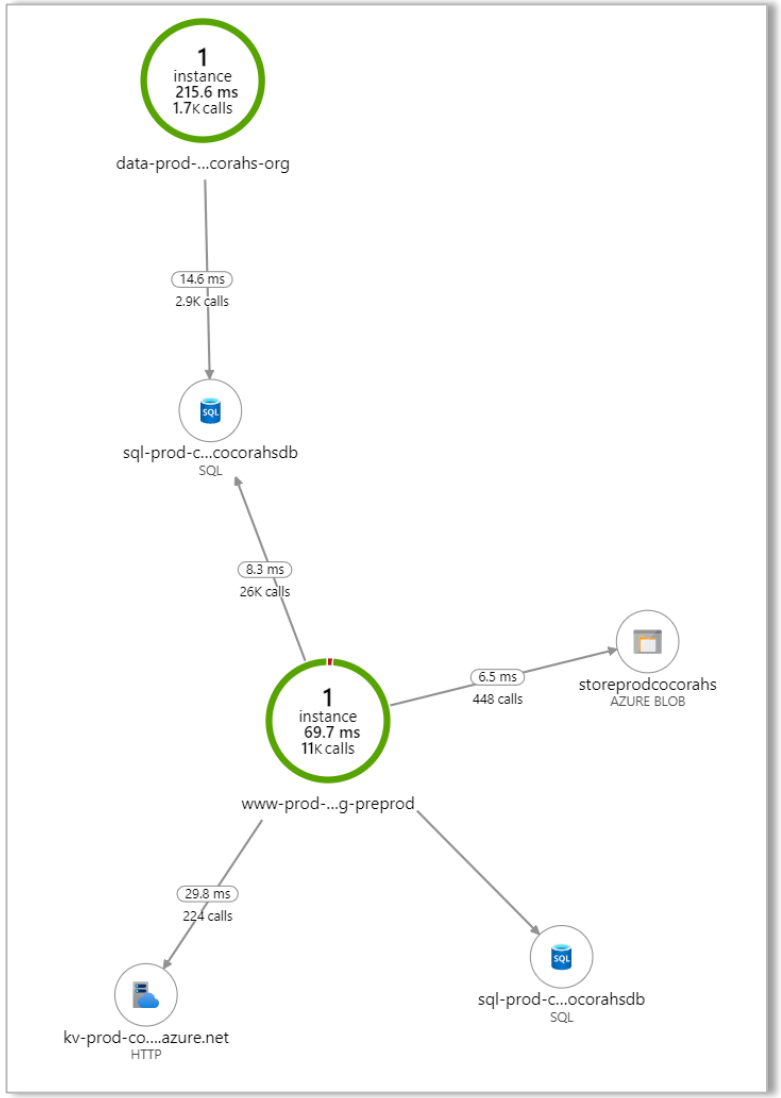
**Azure Test Plans**

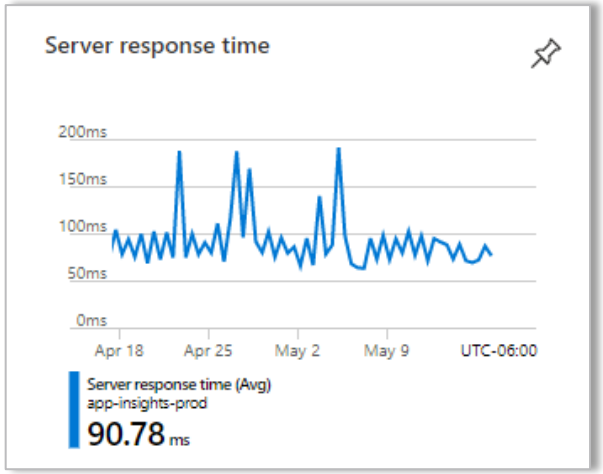
The test management and exploratory testing toolkit that lets you ship with confidence.

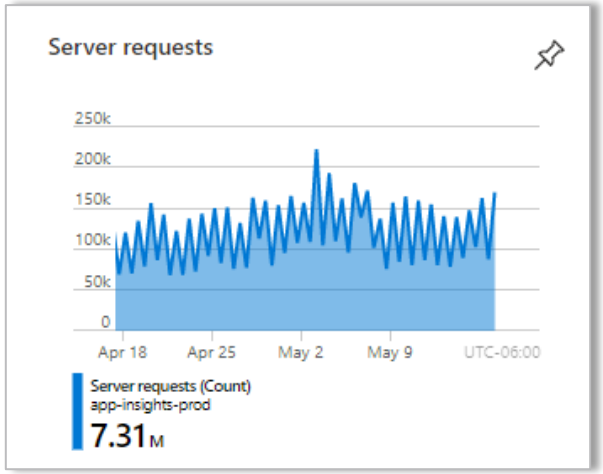
**Azure Artifacts**

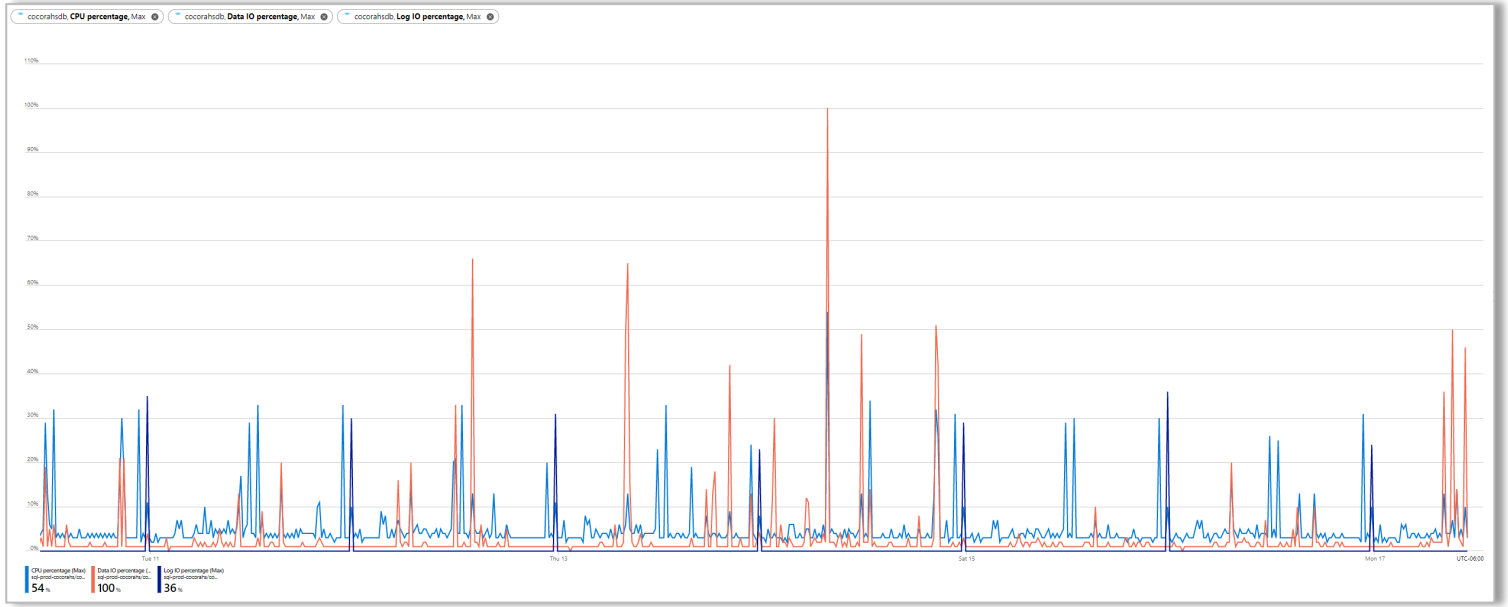
Create, host, and share packages. Easily add artifacts to CI/CD pipelines.

# Monitoring Performance and event monitoring across applications and databases

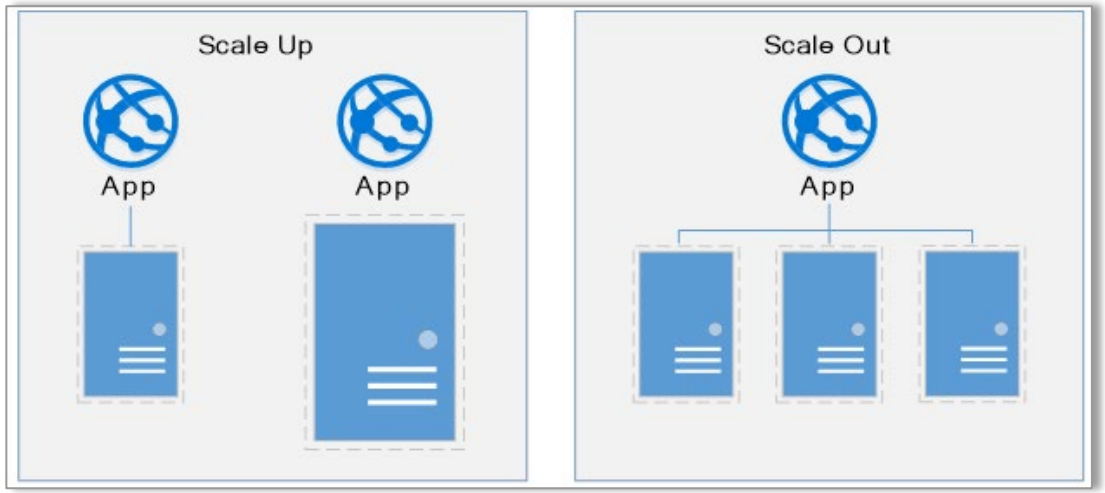


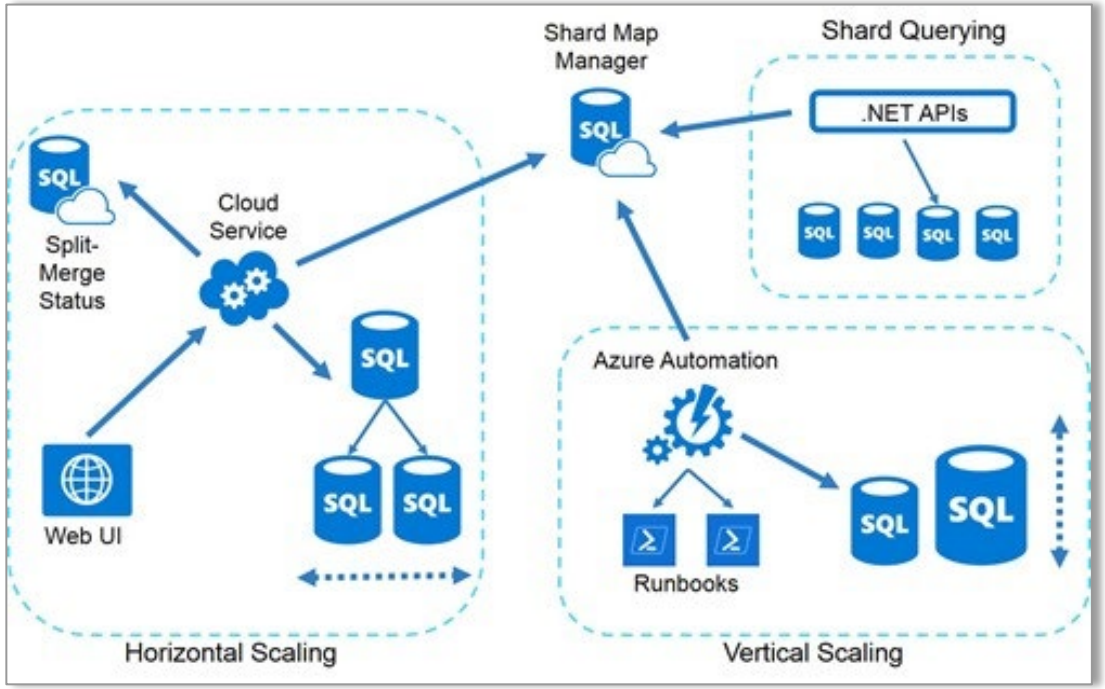



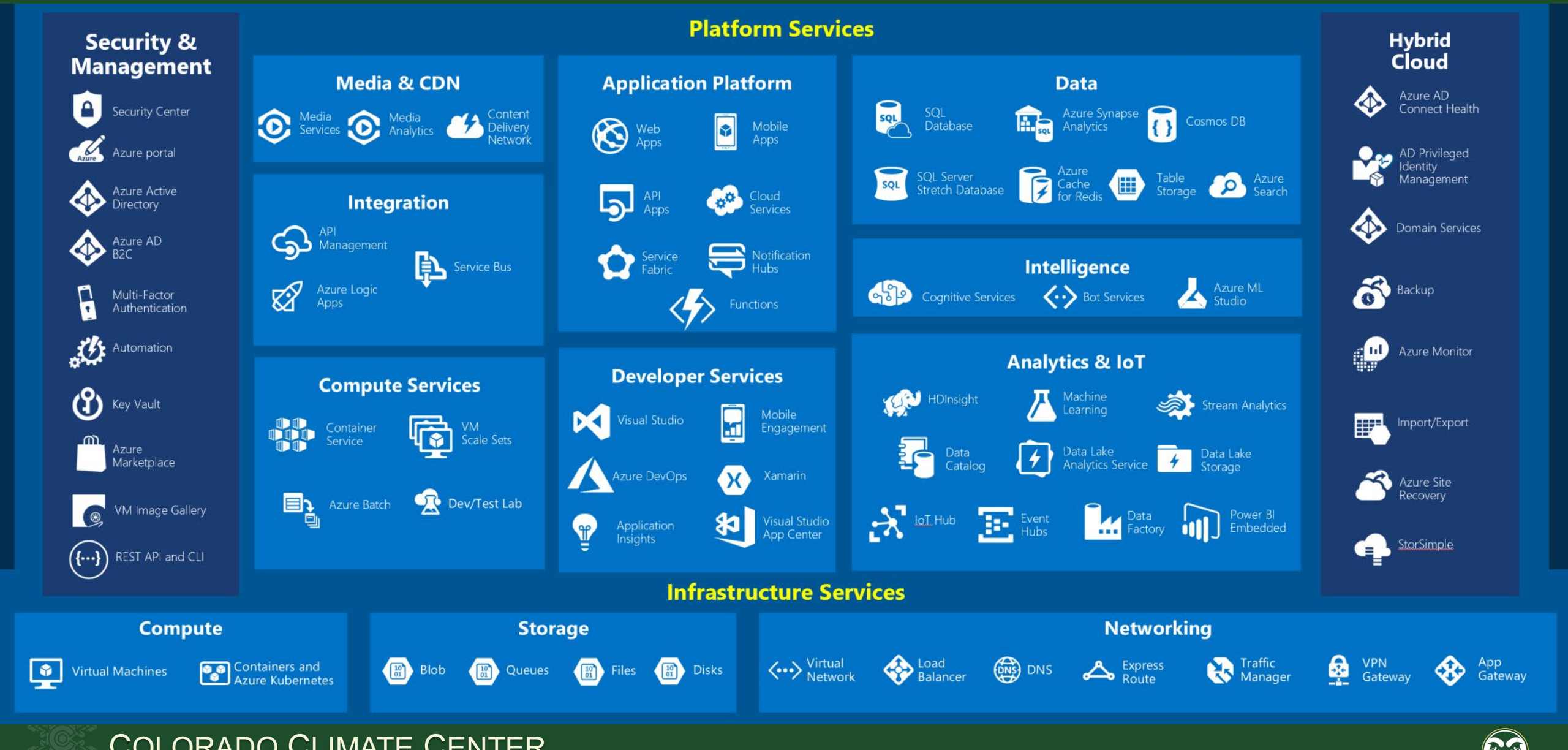



# Scalability and Resiliency

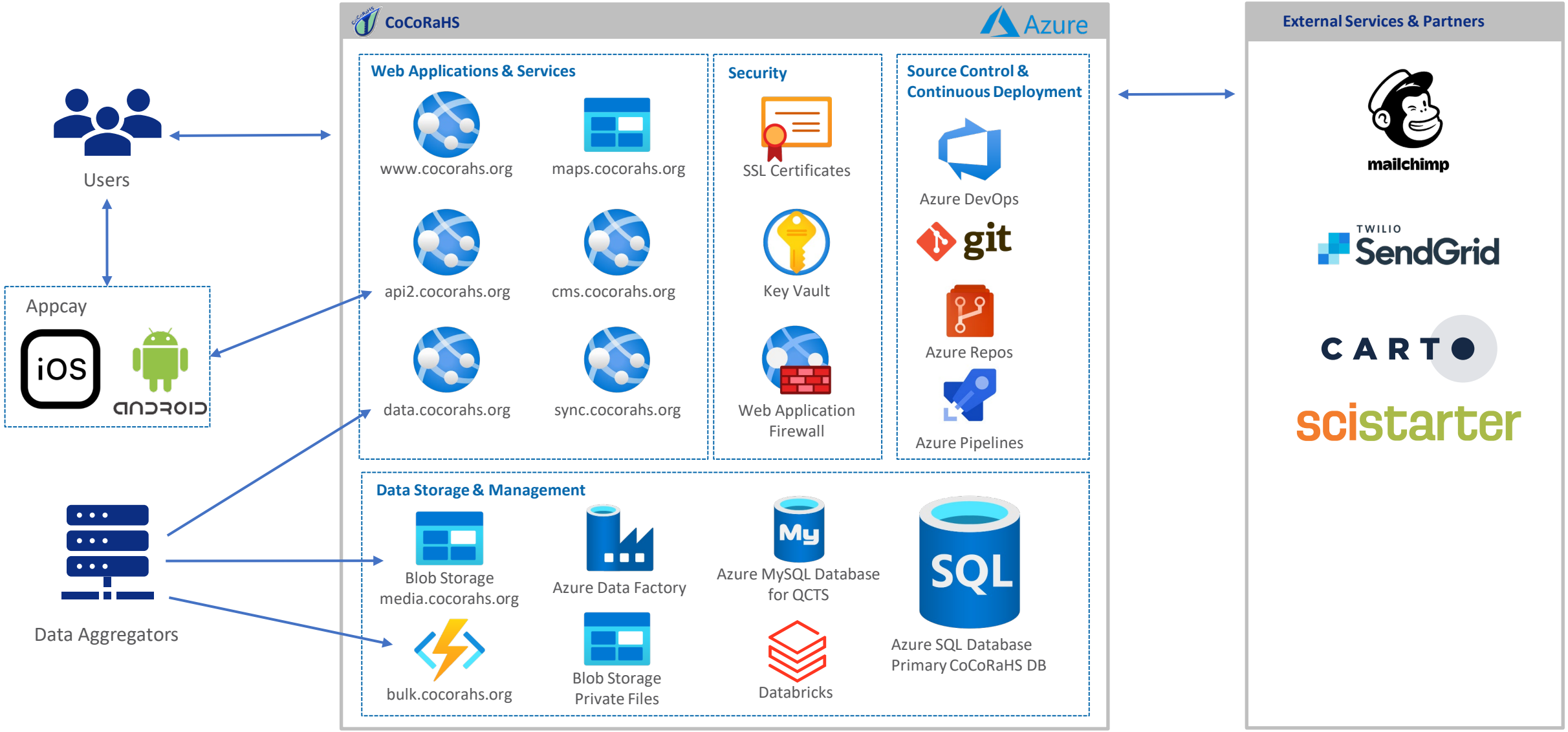


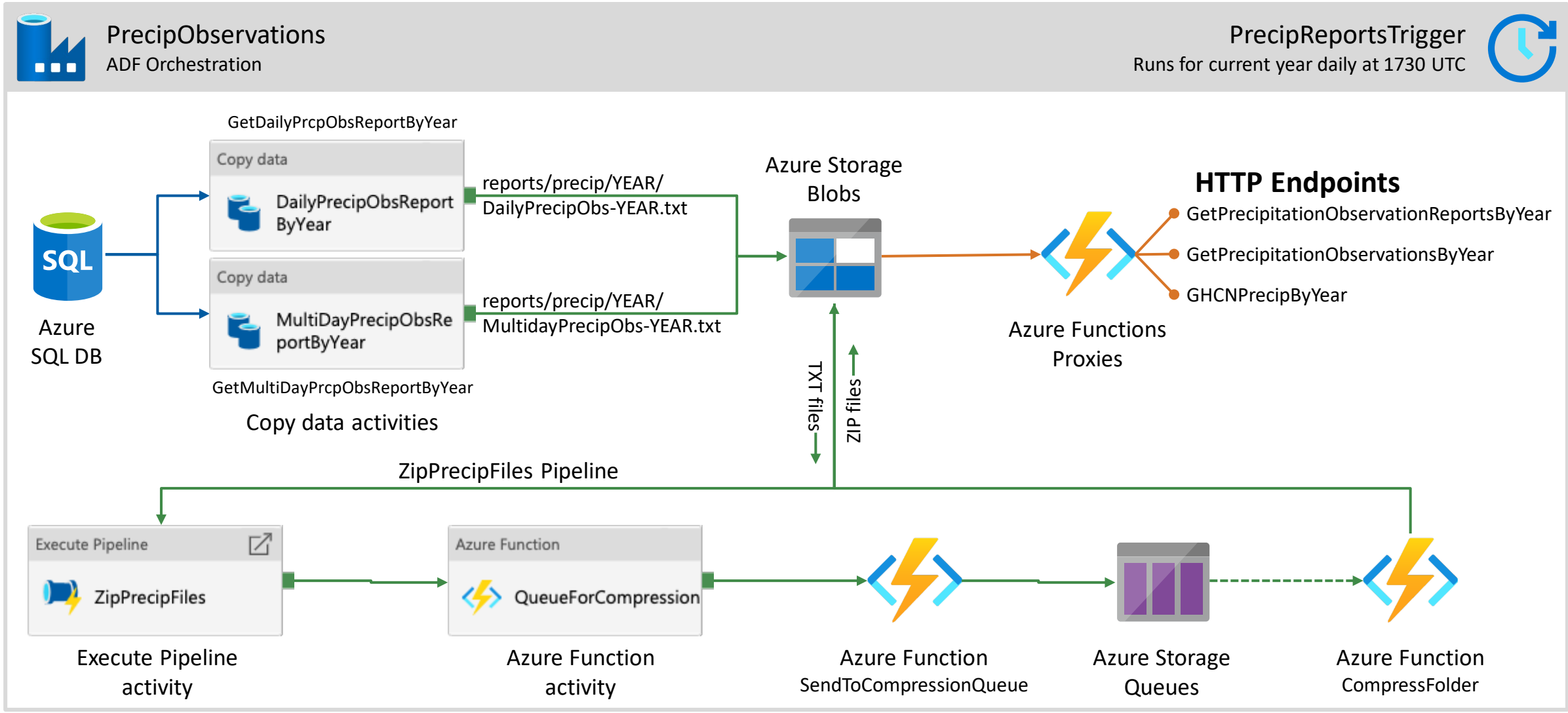
# University Integration and Expansion Opportunities



# Architecture Overview High-level View of Azure Services CoCoRaHS is Using



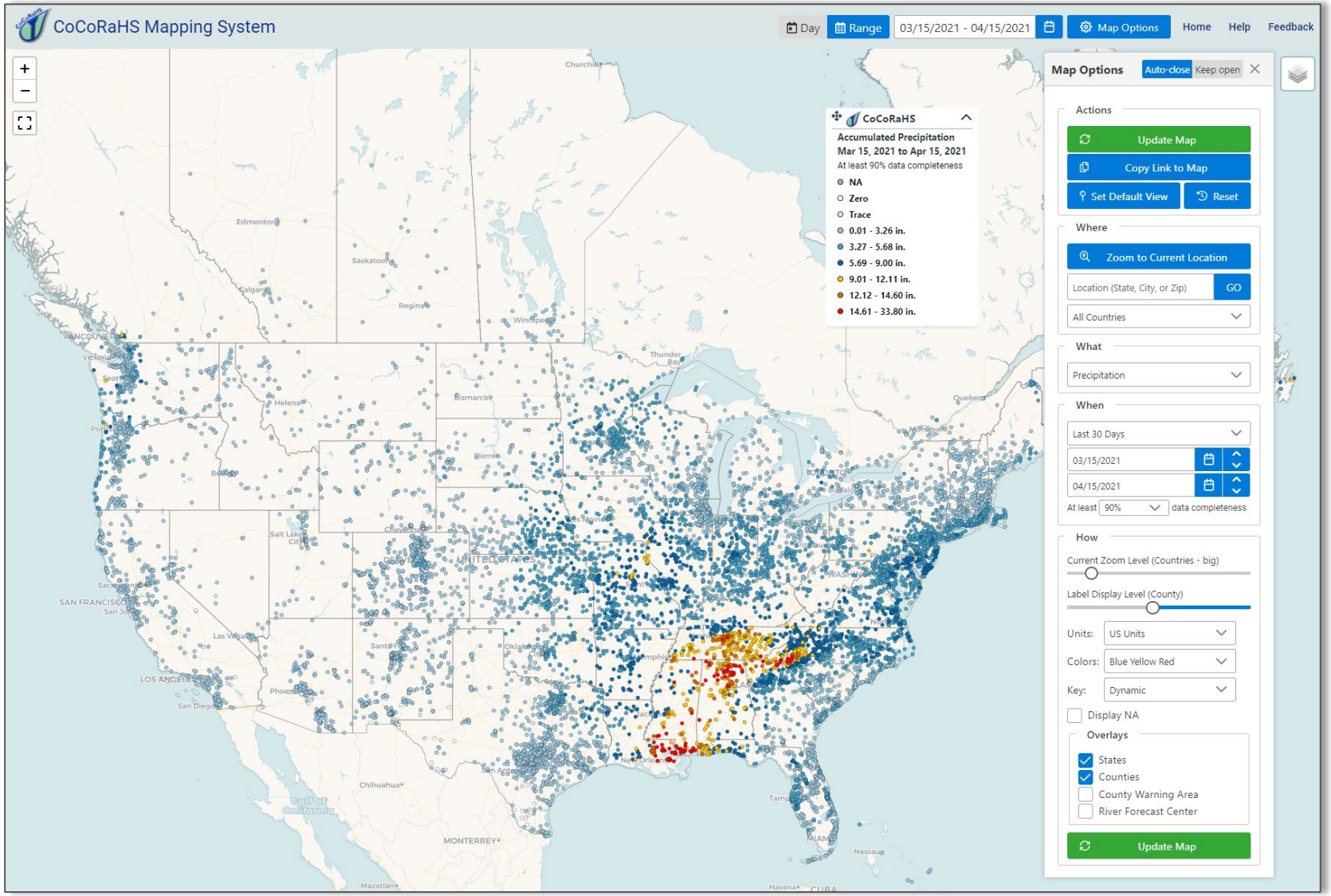
# Architecture Overview Precipitation Observations Pipeline for bulk.cocorahs.org

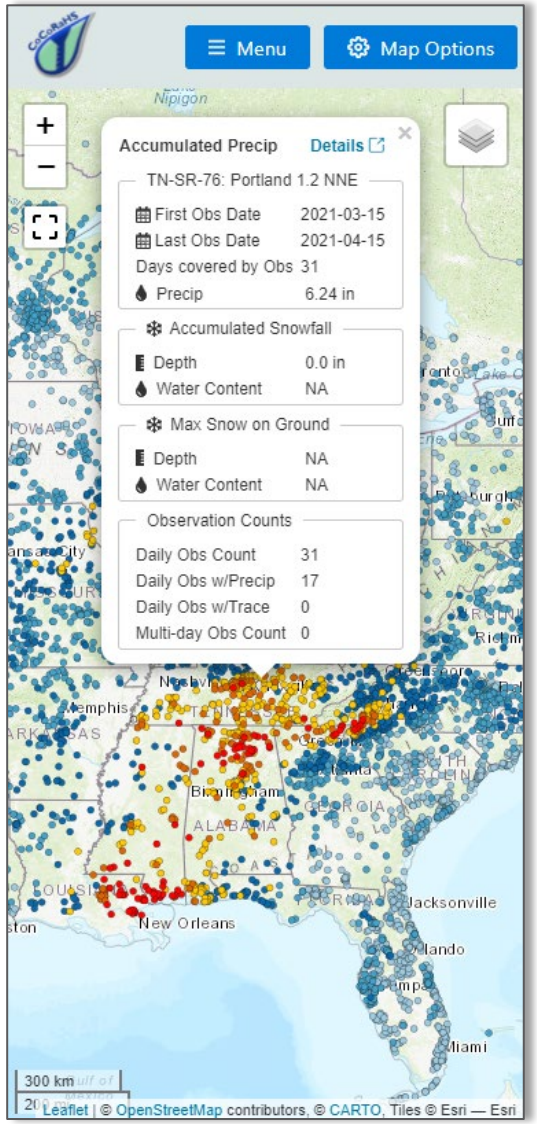


# Mapping

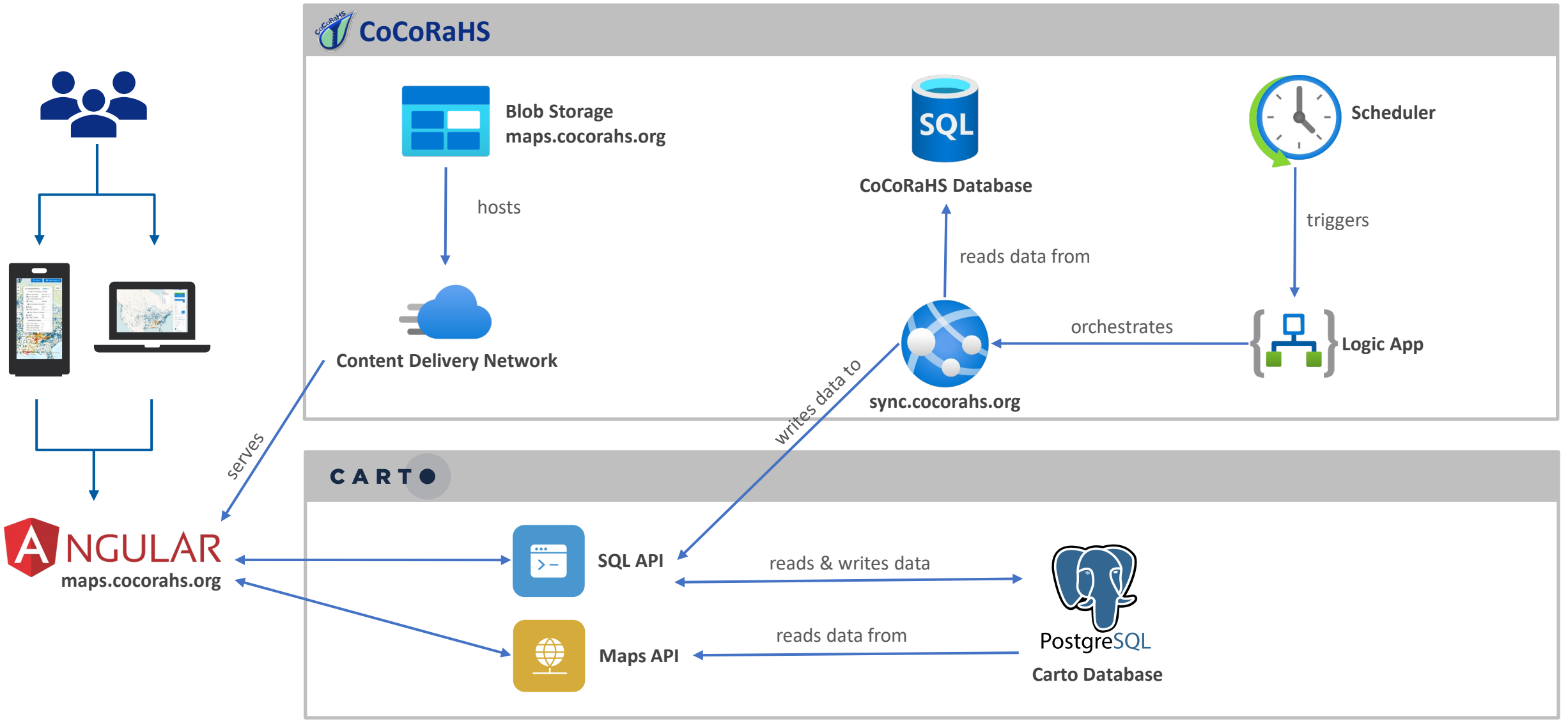
maps.cocorahs.org

# Mapping maps.cocorahs.org is now in production

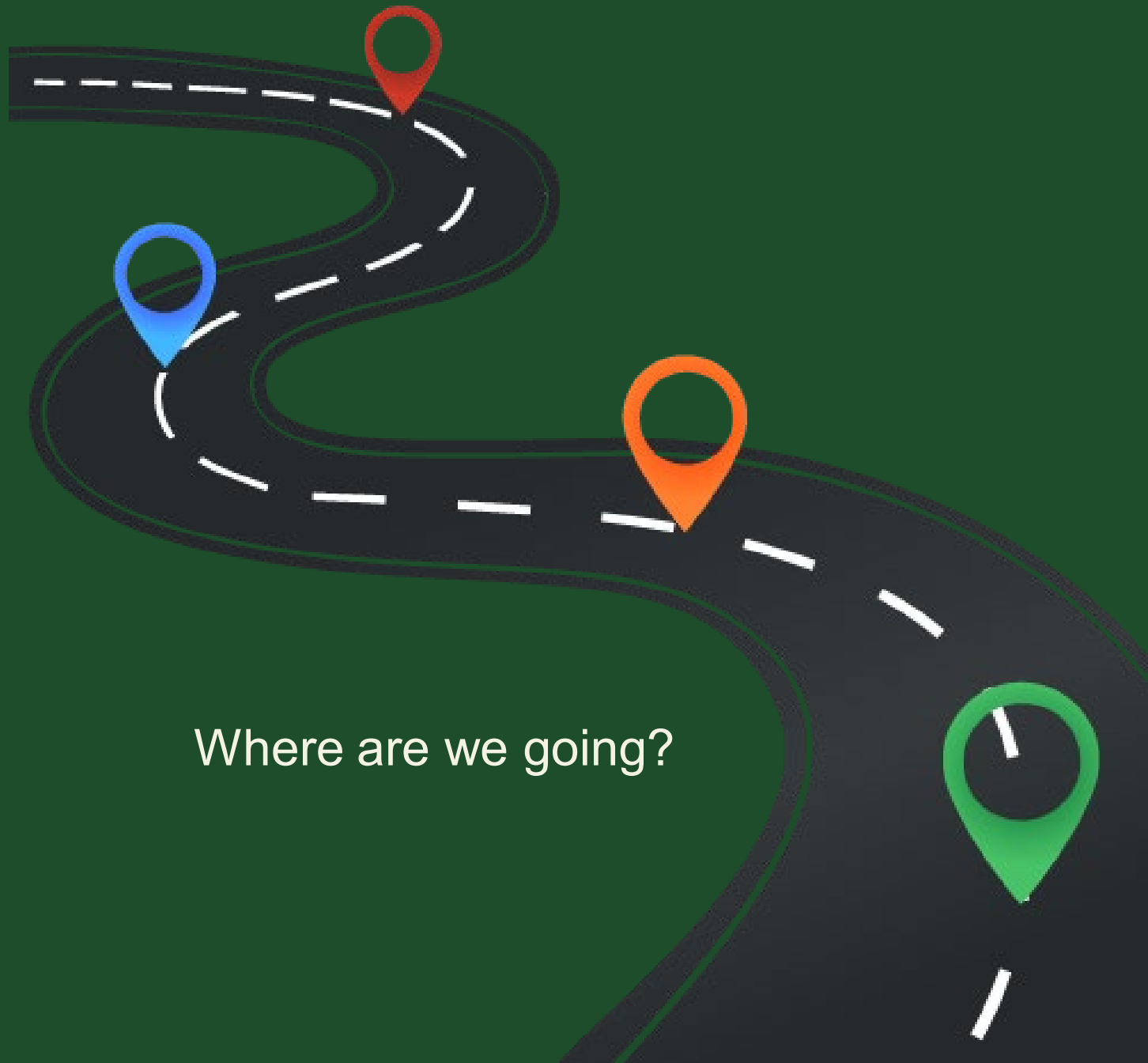


# Mapping Application and Data Sync Overview



# Roadmap



Where are we going?

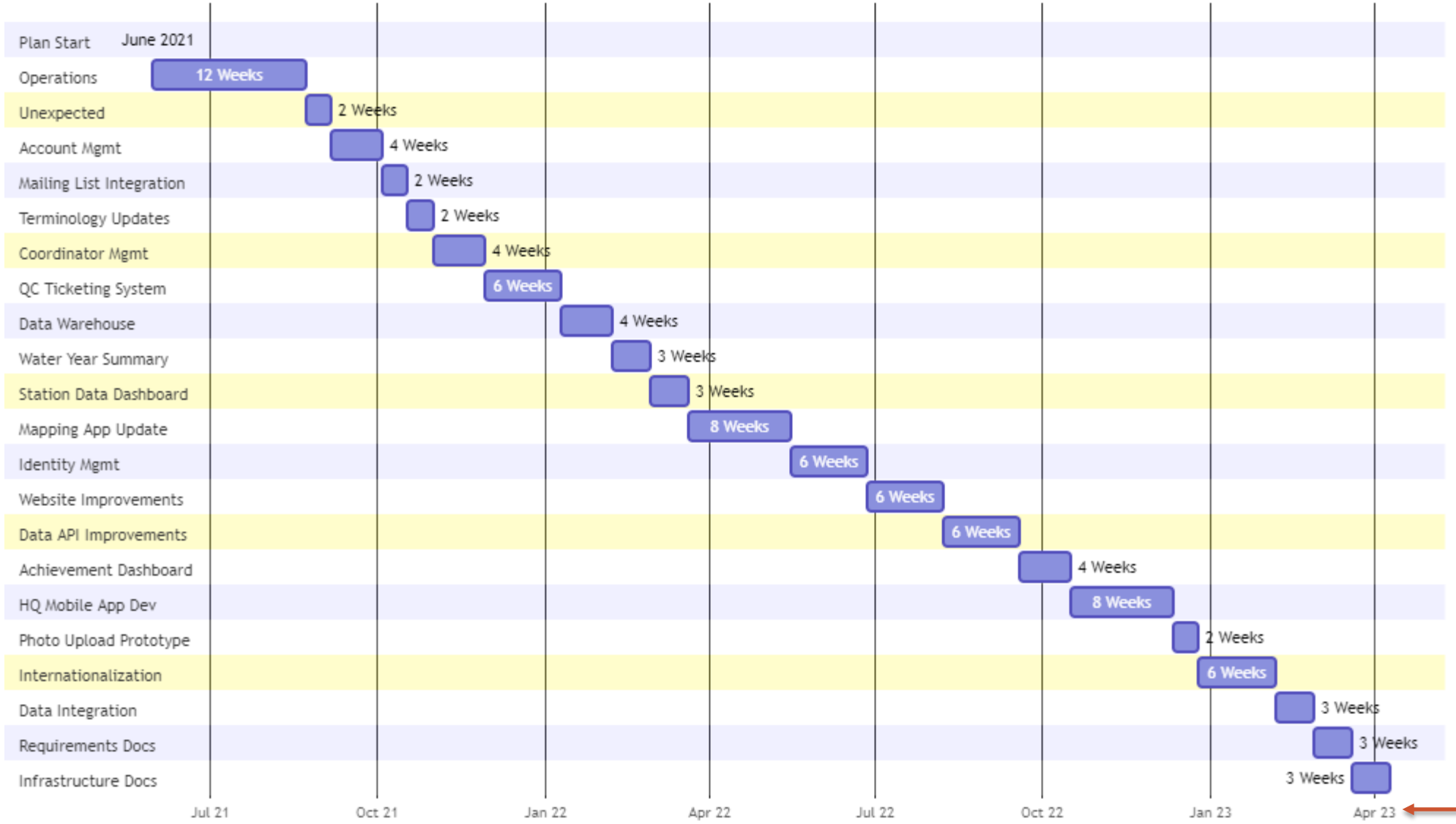
# Roadmap Projects in the pipeline

- Mapping improvements
- Terminology consistency (requires many updates across apps and content)
- Create data warehouse
- CoCoRaHS Member Account improvements (Identity Management)
- Mailing list integration improvements
- QC Ticketing System
- Water Year Summary reporting improvements
- Station Data Dashboard
- Mobile App Development
- Data export and API improvements
- Achievement Dashboard (Badges and Certificates)
- Website User Interface updates
- Improve requirements documentation
- Improve cyber-infrastructure documentation
- Improve metric and internationalization support
- Prototype photo upload with automated content screening
- State, regional, and county coordinator management and display from the database
- Data integration improvements

# Roadmap What is our IT capacity?

- One developer => 50 Work weeks a year
- Operations related tasks take roughly 25% of the available development time (12 weeks per year)
- Set aside at least 2 weeks for the unexpected (proposal writing, external API changes, etc.)
- That leaves 36 weeks a year for application development
- What's that project timeline look like in that context?

# Roadmap Project timeline based on rough estimates




Almost 2 years of work planned for next year!

# Roadmap Increase IT capacity

solliance
your solution experts.

- CoCoRaHS can outsource IT operations and development work to increase IT capacity while maintaining budget sustainability
- Solliance helped CoCoRaHS prepare for and implement the migration to Azure
- They are currently helping with monitoring and operations of the cyber-infrastructure in Azure

- How much could CoCoRaHS expand its IT capacity?
  - CSU has a $150K limit for any vendor (not that we have the budget for it, but it provides a theoretical limit)
  - Solliance charges $150 per hour
  - 1,000 hours = 25 work weeks

- There are other vendors we could work with as well for design work, front-end development, database expertise, and mobile app development if there is budget for it.
- There is an internal time cost associated with outsourcing work, both from a contracting perspective and a project management/coordination perspective.

# Takeaways Five things to remember

- Last year saw some significant improvements to the CoCoRaHS cyber-infrastructure; some highly visible, others less visible but no less important.
- The CoCoRaHS cyber-infrastructure is more complicated than it may seem on the surface
- We have a ton of great value-adding projects to work on
- We don't have the capacity to do it all in the timeframe we would like
- There are options to increase our IT capacity if we can afford to do so

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# Thank you

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