

# How Financial Services are Leveraging Legacy IT Investments when Transitioning to DevOps

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# Welcome



Let me briefly introduce myself...



Software is eating the world.

# Financial Services

Legacy

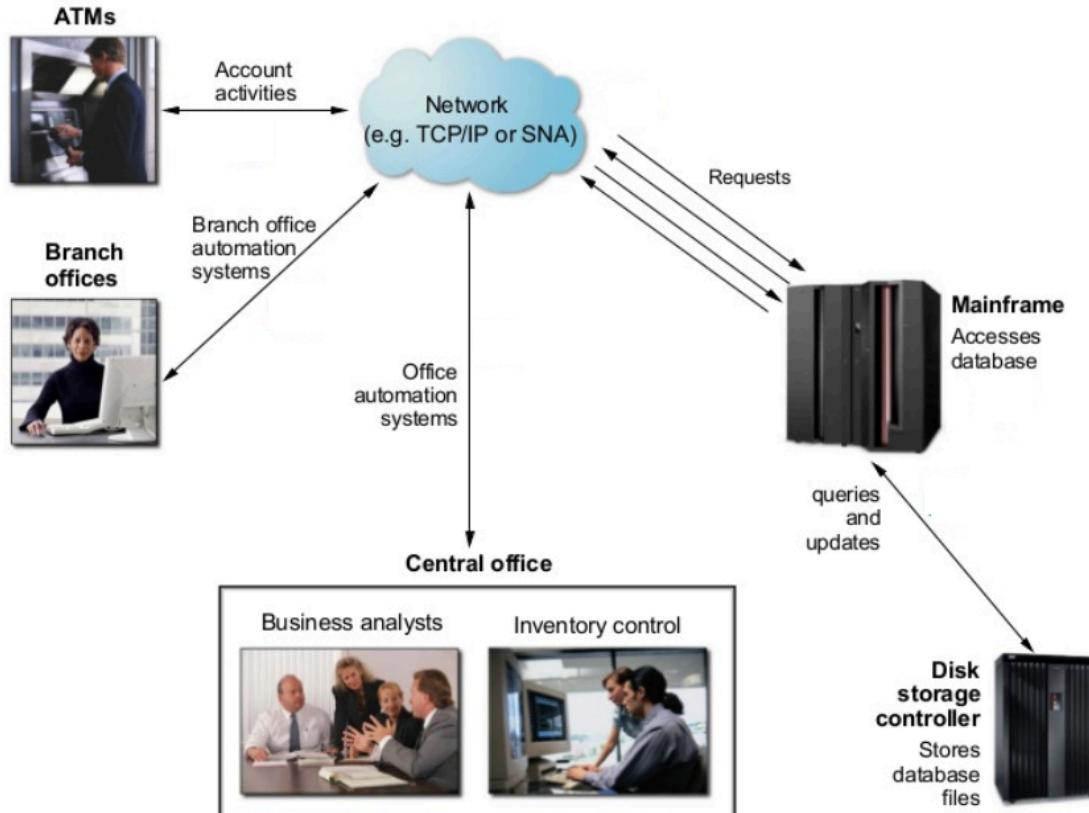
# IT as both the backbone *and* the expensive bad guy

IT has always been considered from the 50s (!! ) as...

- *Magic computing capabilities*, in the beginning,
- Then *frightening big brother*,
- Mainframe in the king in Financial Services.  
...although *some* architectures do not rely on it
- Now the *backbone* of financial business, for speed and accuracy...
- ...although the *expensive bad guy* over the last decade



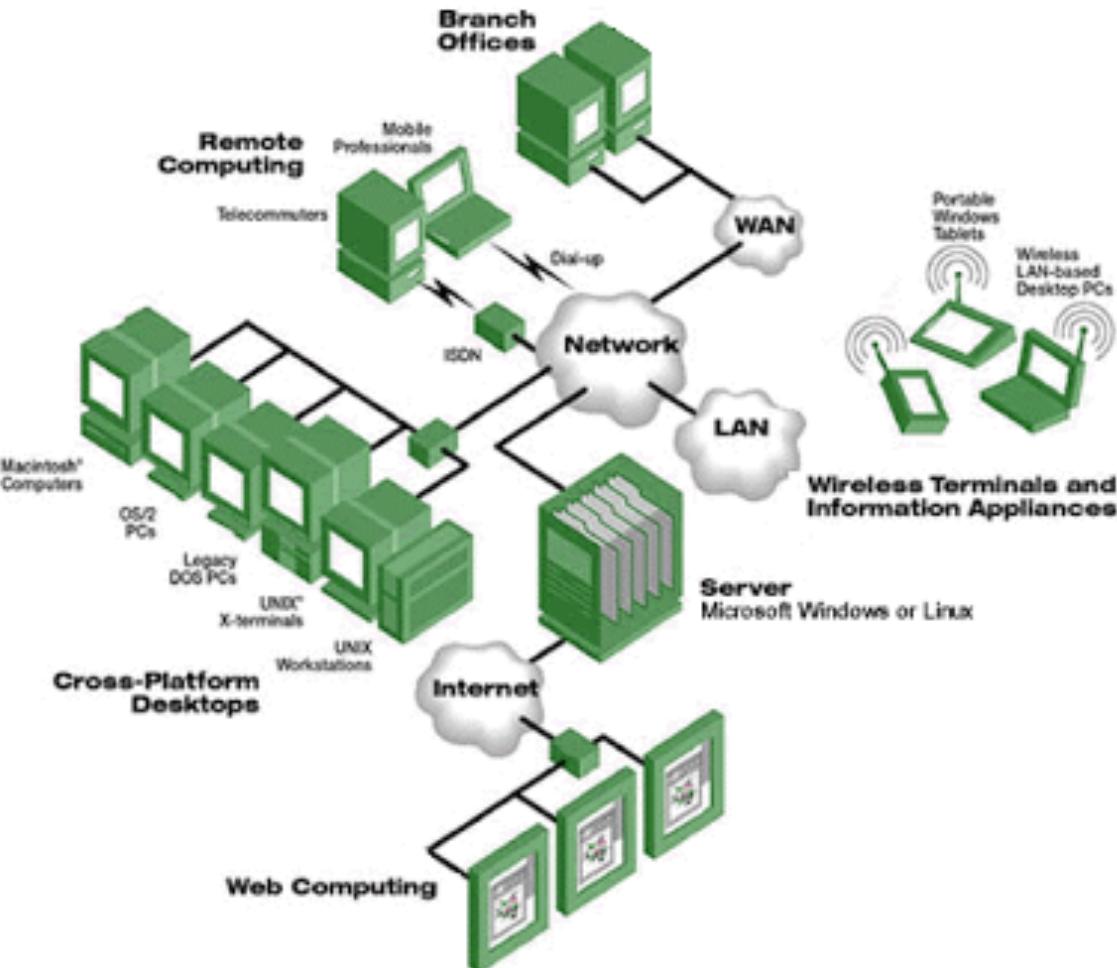
# Backbone: Mainframe is everywhere!



- Online

... or not

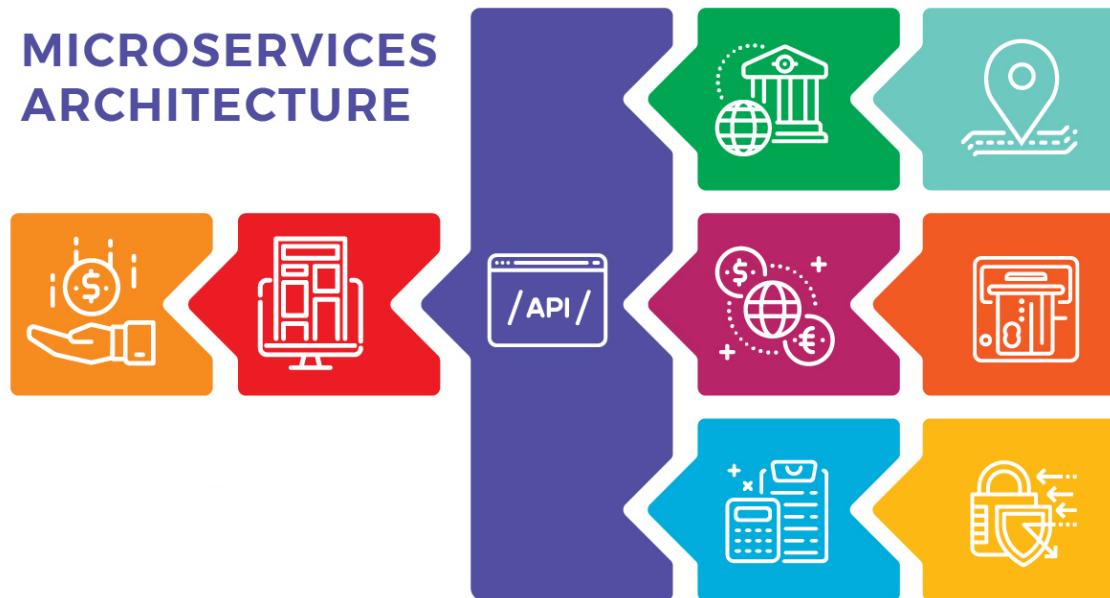
2/N-tiers architecture, typical of “new FinServ companies”. Which, while born after the Mainframe, are often subsidiaries of bigger parent FinServ companies



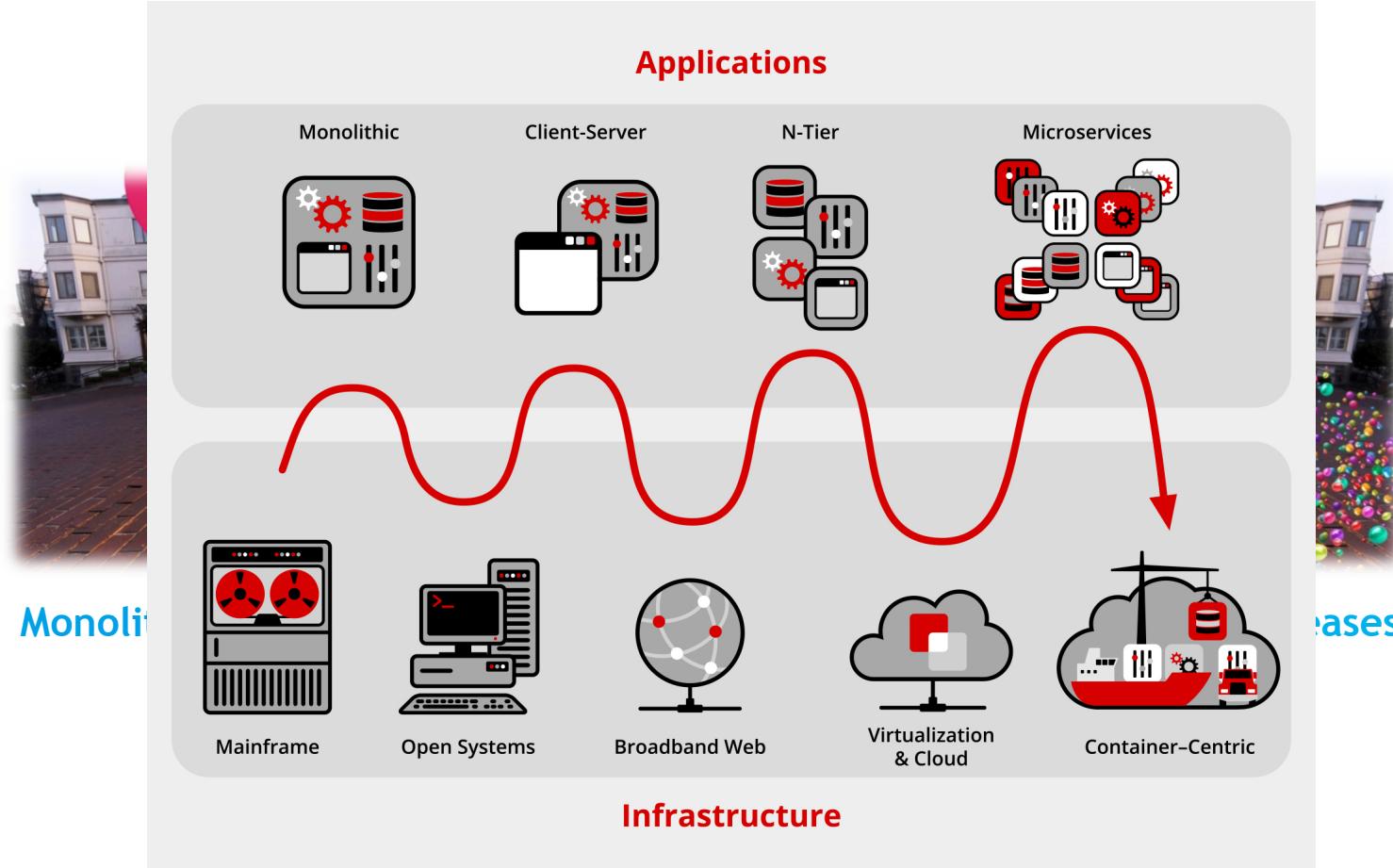
# Looking into the future architectures

Microservices and containers are the new trend

## MICROSERVICES ARCHITECTURE



# FinServ world over the past 20 years



Monolithic

Releases

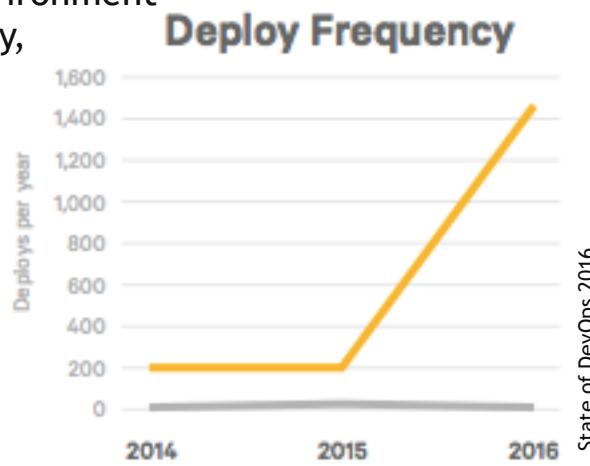
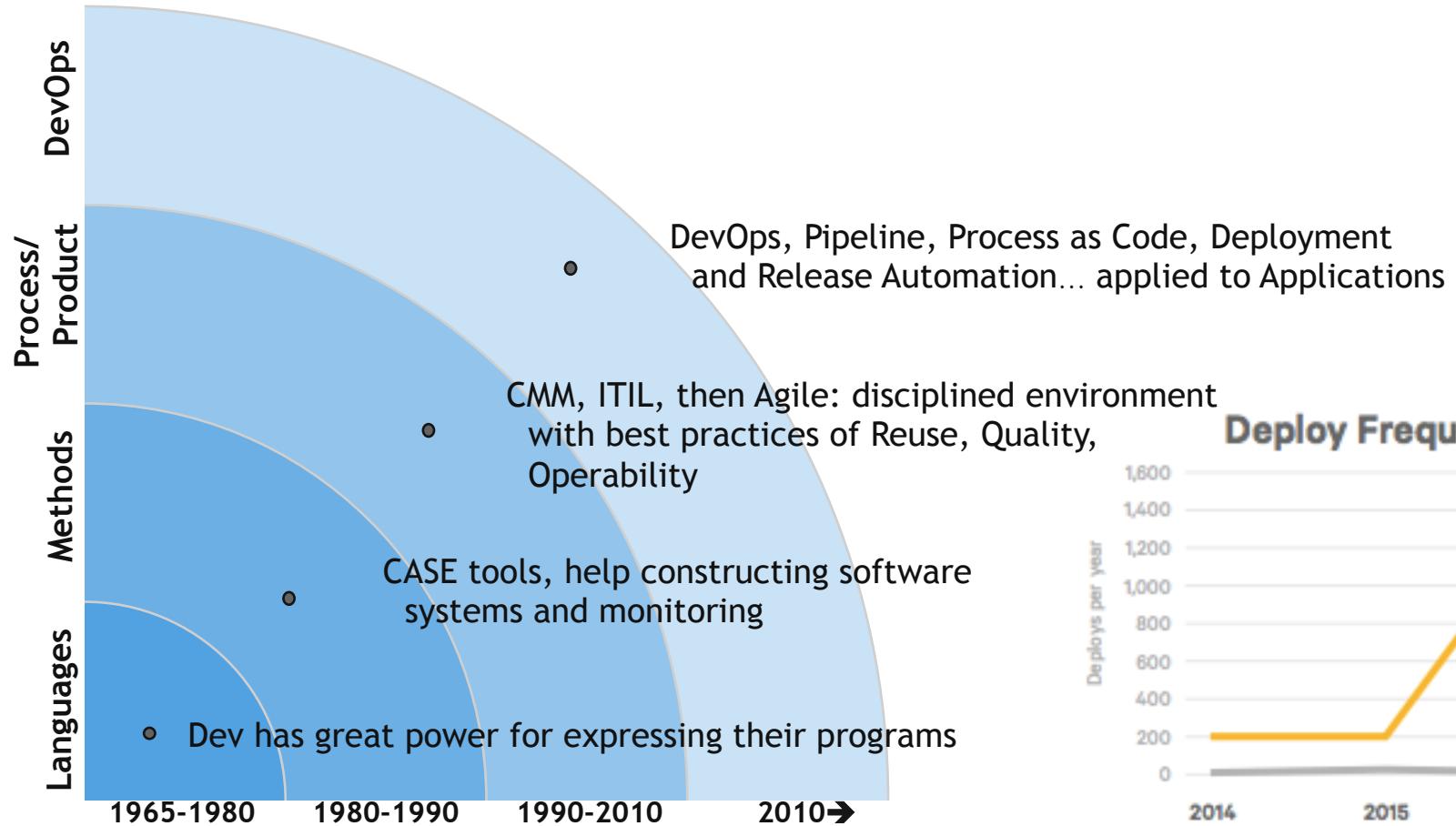




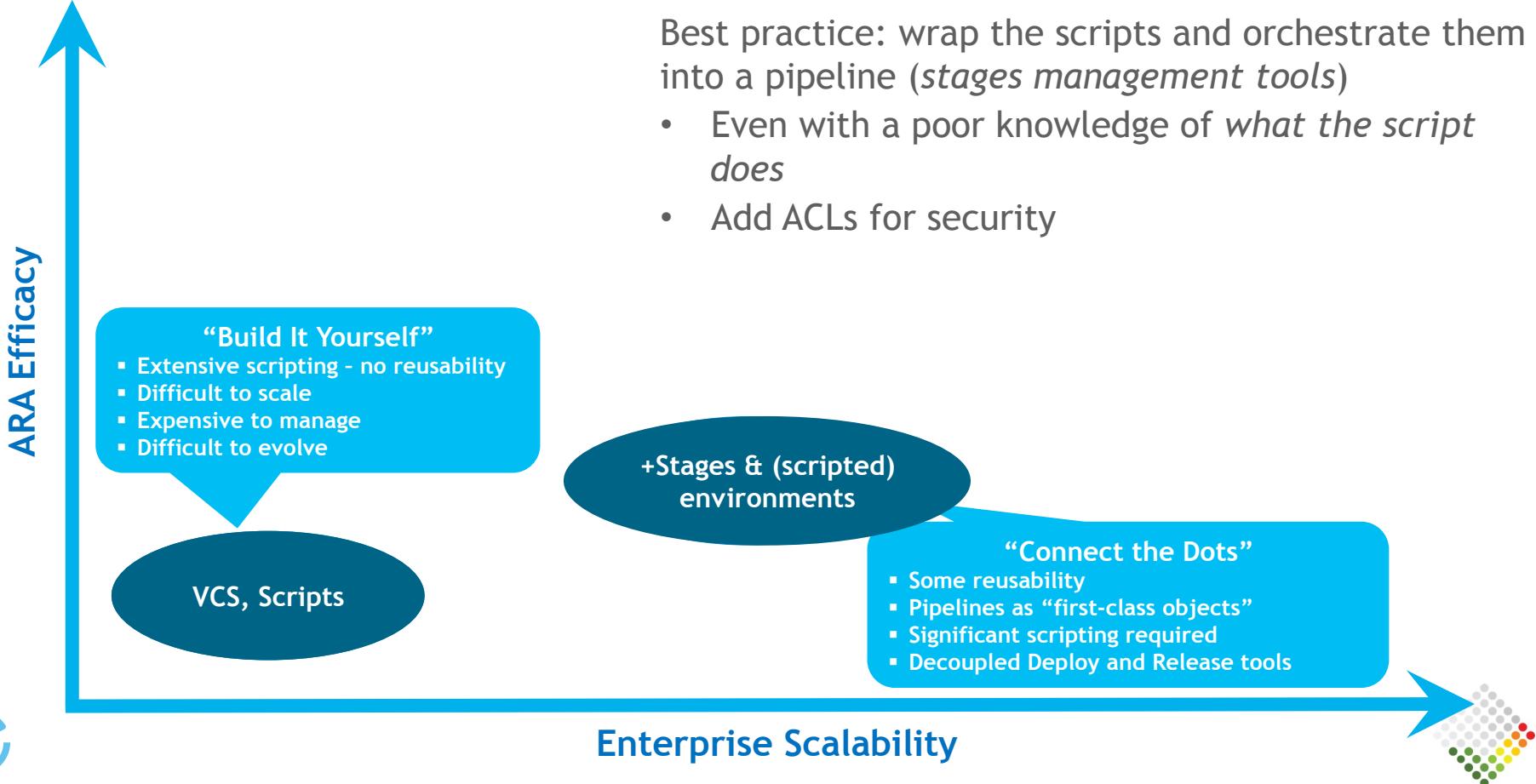
# Financial Services

DevOps

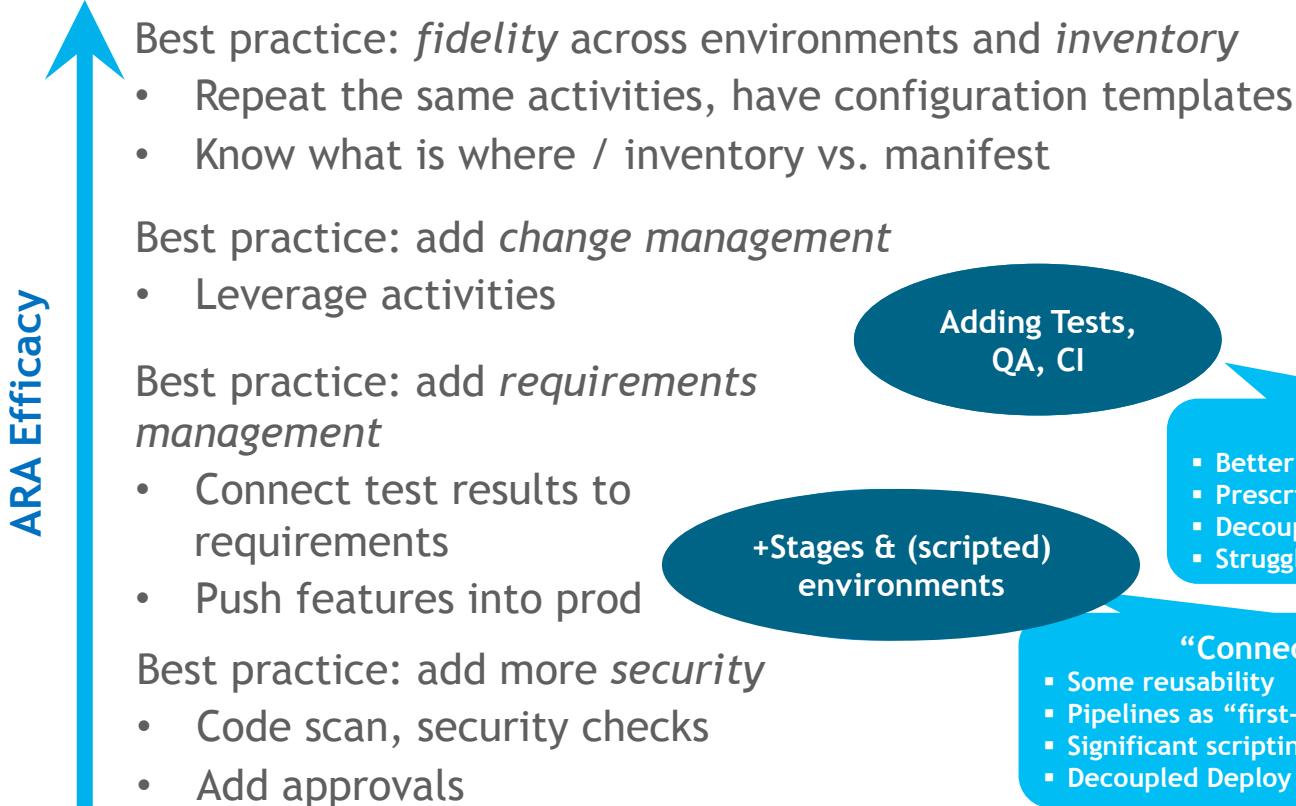
# FinServ world over the past 20 years



# DevOps Tooling Has Matured



# DevOps Tooling Has Matured



Enterprise Scalability



# DevOps Tooling Has Matured

ARA Efficacy

Best practice: *audit trail*

- Approval process
- Automated or manual approvals for security and regulations compliance
- Plus *reporting/dashboarding tools*

Best practice: *self-service catalog*

- Insures consistency of configurations and processes across environments

“Focus on your Business”

- Purpose-built for ARA
- Highly scalable
- Self-service on-boarding
- Readily tailored to evolving best practices
- *Shifts effort from toolchain to product*

Proper ARA platform

Model-Based

Adding Tests,  
QA, CI

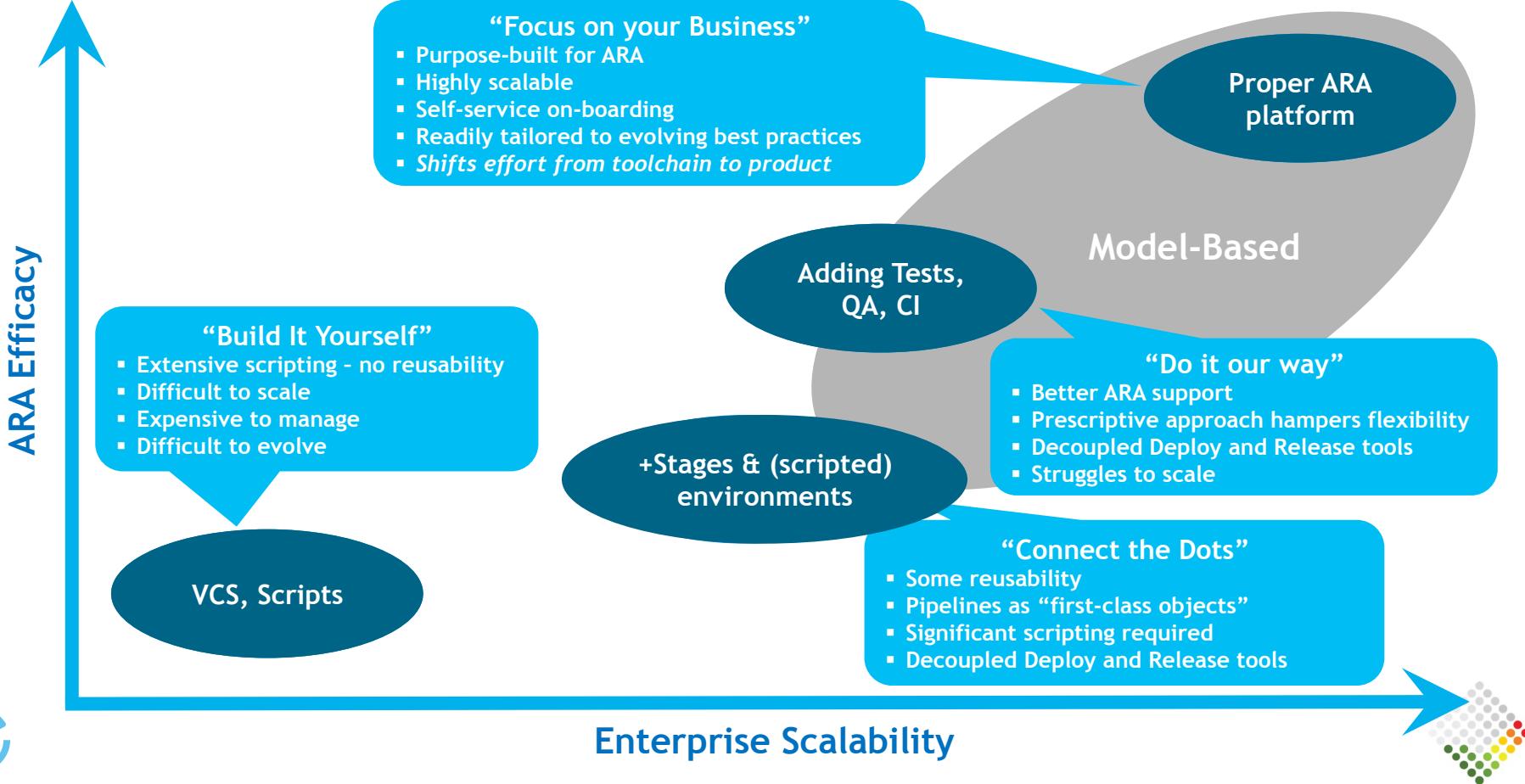
“Do it our way”

- Better ARA support
- Prescriptive approach hampers flexibility
- Decoupled Deploy and Release tools
- Struggles to scale

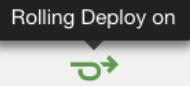
Enterprise Scalability



# DevOps Tooling Has Matured



# Common Technical Challenges in FinServ

	Mapping service dependencies
	Detecting environment drift and deployment history
	Security and Compliance
	Business continuity
	Visibility and dashboard reports



# Mapping service dependencies

## Before

- Extremely complex to trace with VCS tools
- Knowledge kept by teams / human mind

## After

- Dependencies at artifact and application levels
- Verification easy to automate in a deployment
- Reporting capabilities

Version	Dependency	Version	Add
1. 1.0	iCal	3.1	
2. 2.2 ▾	iCal ▾	All Versions ▾	



# Detecting environment drift and deployment history

## Before

- Manual deployment history
- Manual environment inventory

## After

- Automated environment inventory
- Compare app version vs. app deployed in an environment

Dev							QA			Prod						
	APP/SERVICE NAME	VERSION	DEPLOYMENT TYPE	SONAR	DEPLOYMENT DATE		APP/SERVICE NAME	VERSION	DEPLOYMENT TYPE	SELENIUM	DEPLOYMENT DATE	APP/SERVICE NAME	VERSION	DEPLOYMENT TYPE	HEALTH	DEPLOYMENT DATE
CARTS	/builds3/carts	103	K8 Deployment	93%	7/1/2017 17:50:01		Carts	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Carts	1.2.22	K8 Deployment	✗	7/1/2017 17:50:01
CARTS-DB		latest	K8 Deployment	-	7/1/2017 17:50:01		Carts-DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Carts-DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
CATALOGUE	/builds3/catalogue	97	K8 Deployment	91%	7/1/2017 17:50:01		Catalogue	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Catalogue	1.2.22	K8 Deployment	✗	7/1/2017 17:50:01
CATALOGUE-DB		2.1	K8 Deployment	-	7/1/2017 17:50:01		Catalogue-DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Catalogue-DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
FRONT-END	/builds3/front-end	123	K8 Rolling Update	94%	8/8/2017 10:53:45		Front-End	1.2.23	K8 Rolling Update	✓	8/8/2017 10:54:46	Front-End	1.2.23	K8 Rolling Update	✓	8/8/2017 10:56:31
ORDERS	/builds3/orders	97	K8 Deployment	99%	7/1/2017 17:50:01		Orders	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Orders	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
ORDERS-DB		latest	K8 Deployment	97%	7/1/2017 17:50:01		Orders DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Orders DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
PAYMENT	/builds3/payment	93	K8 Deployment	90%	7/1/2017 17:50:01		Payment	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Payment	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
QUEUE-MASTER	/builds3/queue-master	92	K8 Deployment	89%	7/1/2017 17:50:01		Queue Master	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Queue Master	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
QUEUE-MASTER	/builds3/queue-master	92	K8 Deployment	-	7/1/2017 17:50:01		RabbitMQ	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	RabbitMQ	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
							Shipping	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01	Shipping	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
							User	1.2.23	K8 Deployment	93%	7/1/2017 17:50:01	User	1.2.23	K8 Deployment	✓	7/1/2017 17:50:01
							User DB	1.2.22	K8 Deployment	-	7/1/2017 17:50:01	User DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
							Zipkin	1.2.22	K8 Deployment	-	7/1/2017 17:50:01	Zipkin	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
							Zipkin Cron	1.2.22	K8 Deployment	-	7/1/2017 17:50:01	Zipkin Cron	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01
							Zipkin DB	1.2.22	K8 Deployment	-	7/1/2017 17:50:01	Zipkin DB	1.2.22	K8 Deployment	✓	7/1/2017 17:50:01

# Security and Compliance

## Before

- Security test specific path / app certification
- Audit took ages to complete

## After

- Security test are part of the process (*DevSecOps*)
- Audit trail is part of the process, SOX compliance
- Immediate information gathering and proof (inventories)

CARTS	/builds3/carts	103	1.2.103	CONTAINER	KUBERNETES	elektrikTomcat	carts	/builds3	AMAZON ECR REGISTRY	repository url	last commit date	commit author	commit message	commit sha	commit color	commit date	GITHUB	https://github.com
CARTS-DB			latest	CONTAINER	KUBERNETES		mongo		DOCKER HUB									
CATALOGUE	/builds3/catalogue	97	1.2.97	CONTAINER	KUBERNETES	elektrikTomcat	catalogue	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Added merchandise item	2017-06-14 05:02:47+00:00	GITHUB	https://github.com				
CATALOGUE-DB	/builds3/catalogue	88	1.2.1	CONTAINER	KUBERNETES	elektrikTomcat	catalogue-db	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Initial commit	2017-06-14 05:32:48+00:00	GITHUB	https://github.com				
FRONT-END	/builds3/front-end	131	1.2.131	CONTAINER	KUBERNETES	elektrikTomcat	front-end	/builds3	AMAZON_ECR_REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Changed banner color, carousel pic	2017-06-08 10:53:28+00:00	GITHUB	https://github.com				
ORDERS	/builds3/orders	97	1.2.97	CONTAINER	KUBERNETES	elektrikTomcat	orders	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Added calculator functionality	2017-06-24 10:32:06+00:00	GITHUB	https://github.com				
ORDERS-DB			latest	CONTAINER	KUBERNETES		mongo		DOCKER HUB									
PAYMENT	/builds3/payment	93	1.2.93	CONTAINER	KUBERNETES	elektrikTomcat	payment	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Added foreign currency	2017-06-16 04:12:41+00:00	GITHUB	https://github.com				
QUEUE-MASTER	/builds3/queue-master	92	1.2.92	CONTAINER	KUBERNETES	elektrikTomcat	queue-master	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Modified existing queue	2017-06-19 11:00:56+00:00	GITHUB	https://github.com				
QUEUE-MASTER	/builds3/queue-master	92	1.2.92	CONTAINER	KUBERNETES	elektrikTomcat	queue-master	/builds3	AMAZON ECR REGISTRY	731977058523.dkr.ecr.us-east-2.amazonaws.com	Modified existing queue	2017-06-19 11:00:58+00:00	GITHUB	https://github.com				



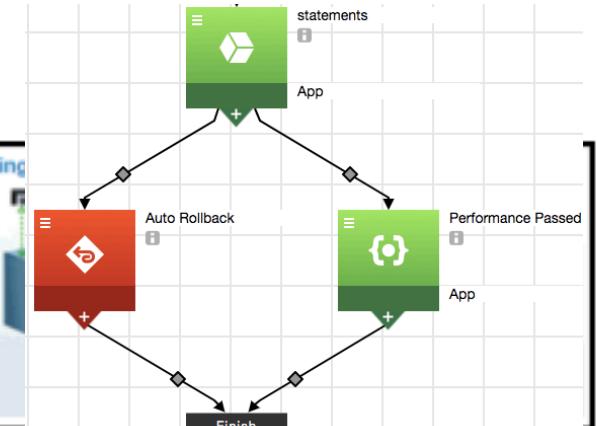
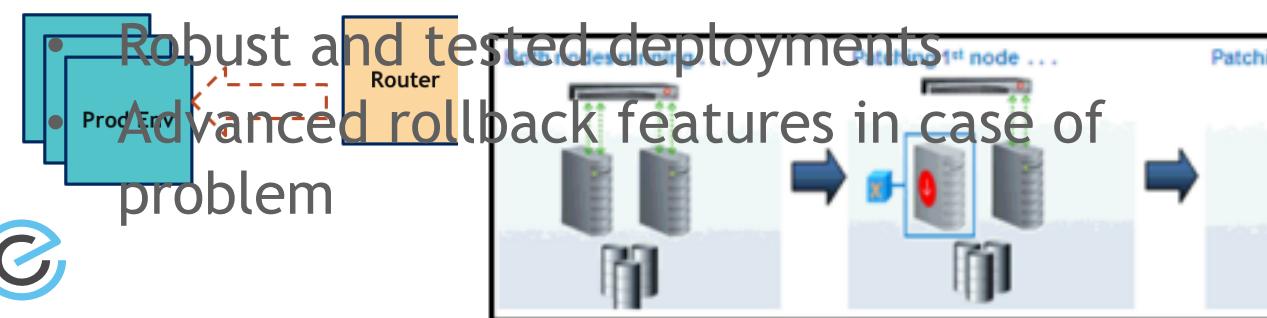
# Business continuity

## Before

- Small deployment windows
- Advanced global deploys long and cumbersome to script
- Need to reschedule maintenance window in case of problem

## After

- Advanced deployment patterns (Blue/Green, rolling deploy)



# Visibility and dashboard reports

Dashboards can be seen for:

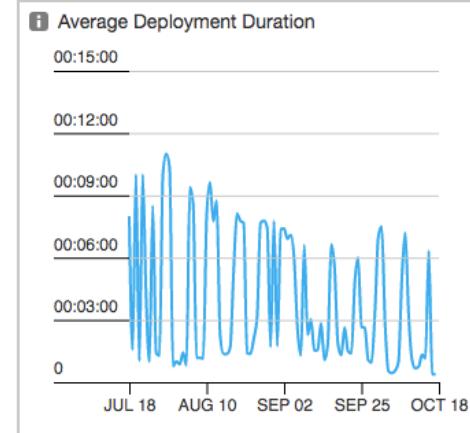
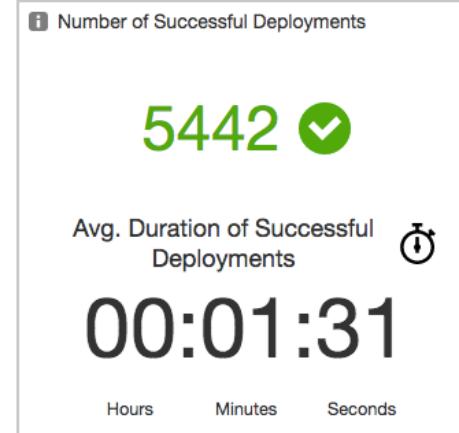
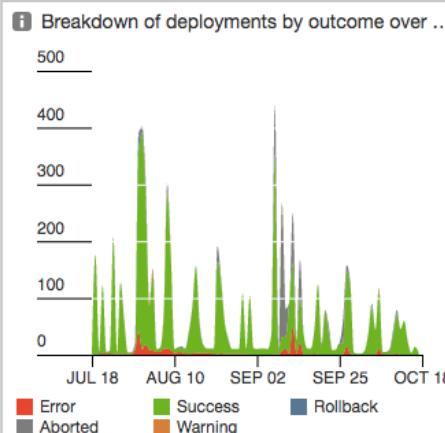
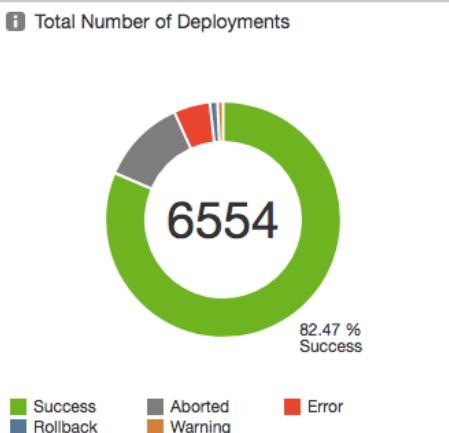
- Making informed decisions
- Use feedback to enable a culture of continuous improvement,

Best practice: apply proven engineering patterns to the effort of shipping code.

- Start small, follow with rapid Agile iterations *to integrate your toolset*
- Solve today's problem, but design for future growth and flexibility
- Version pipelines and related code. **Continuously integrate** changes (process as code).
- Ensure fast feedback and data for optimization and troubleshooting
- Encourage continuous improvement with rigorous, regular refactoring

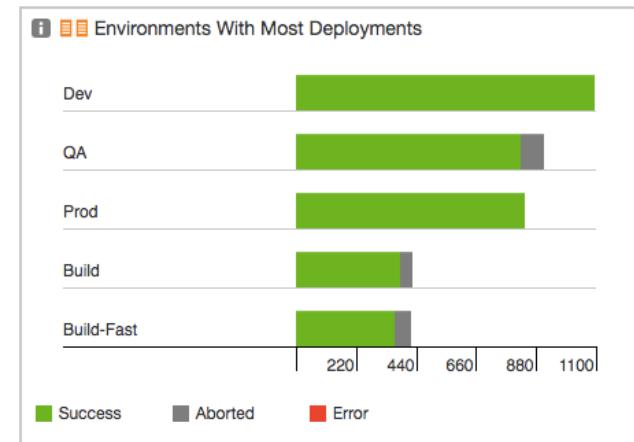
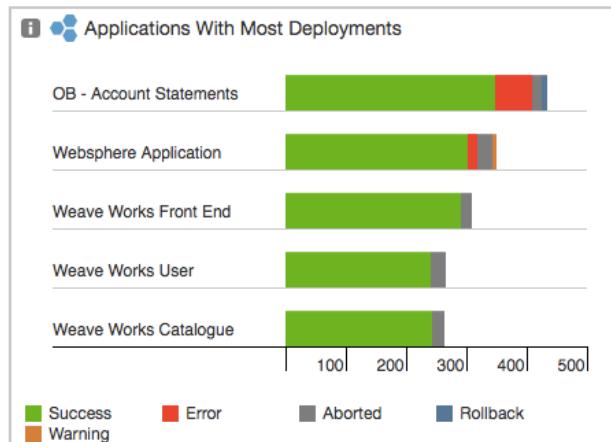


# ... so that deployments can be monitored ...

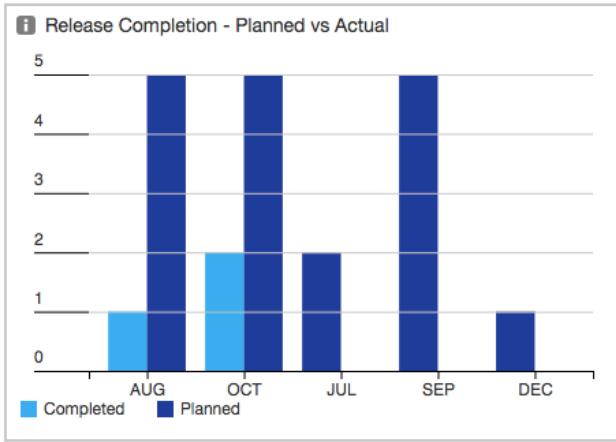
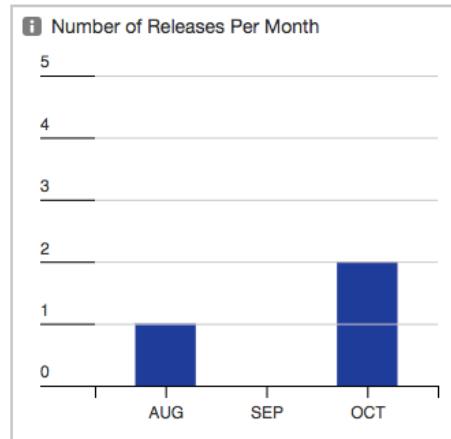
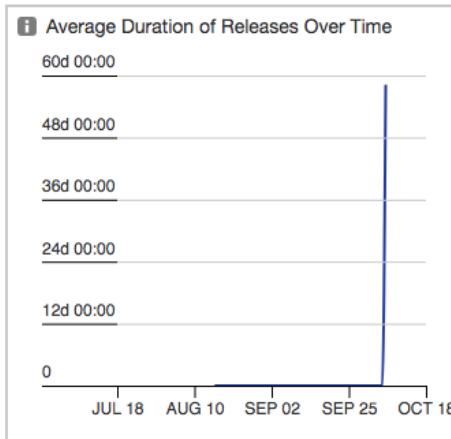
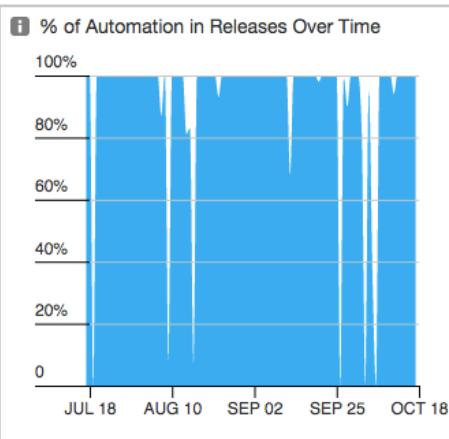
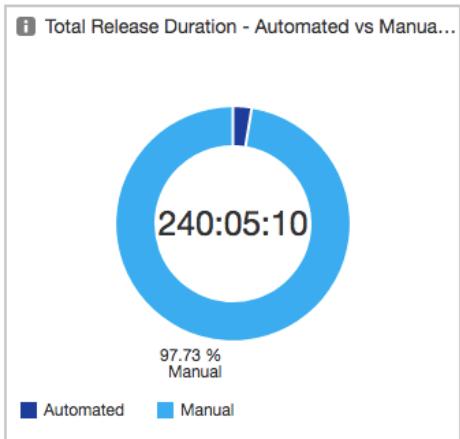


**Applications With Most Failed Deployments**

1. OB - Account Statements	61
2. RPM	34
3. Carts DB Service	26
4. Carts Service	23
5. Cubic App	22



# ... and also releases ...



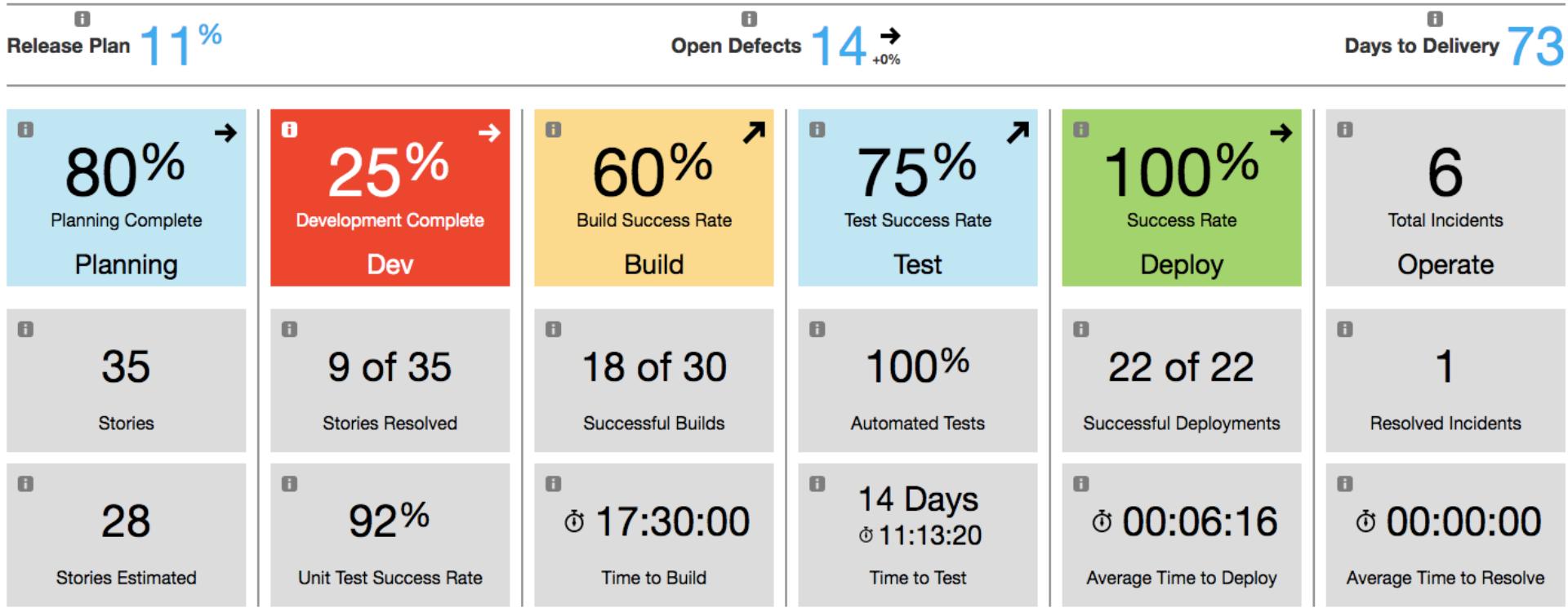
**Releases with Longest Duration**

1.	➡ Multi-Component August Release	⌚ 58 Days, 04:52
2.	➡ JH Deployment-Complete	⌚ 00:08
3.	➡ CTS Apps Release	⌚ 00:00

**The top 10 longest running pipeline tasks across releases**

1.	⚙ Manual V...	Manual	⌚ 57 Days, 12:57
2.	⚙ Manual V...	Manual	⌚ 57 Days, 12:55
3.	⚙ Entry gat...	Manual	⌚ 42 Days, 07:38
4.	⚙ Entry gat...	Manual	⌚ 23 Days, 16:12
5.	⚙ Manual V...	Manual	⌚ 19 Days, 03:31
6.	⚙ Manual V...	Manual	⌚ 19 Days, 03:28
7.	⚙ Manual V...	Manual	⌚ 07 Days, 04:50
8.	⚙ Approve ...	Manual	⌚ 05 Days, 15:00
9.	⚙ Approve ...	Manual	⌚ 21:22
10.	⚙ Manual D...	Manual	⌚ 17:04

... and make informed decisions when all information are gathered



# About

Manuel Schuller  
Partner @ Kalitek

EMEA technical director @ Electric-Cloud

Founded in 2010 with a single & unique vision: help our customers deliver better software

- Today Leader in DevOps Automation and Software Analysis & Measurement
- We enable our customers to:
  - Achieve Continuous Delivery
  - Assess and develop DevOps strategy
  - Deliver secure high quality Software
  - Measure and monitor Vendor Quality & Productivity
  - Assess Software Risks during RFPs



# About Electric Cloud

## Our View

- 1 Every Business is a Software Business
- 2 DevOps and Continuous Delivery = new Agile
- 3 Automation & Acceleration are essential

## Who We Are

- 1 Singular goal to help the world deliver better software faster
- 15 Years of experience accelerating software delivery
- 60 Fortune 500 Customers operating in many verticals
- 85 % Average Reduction in release cycle time



# EC “Leader” in Gartner ARA MQ: 2016 & 2017



"Gartner's survey of EC customers indicated that the primary reasons for selecting Electric Cloud's ARA solution included **strong customer focus**, functional **breadth and/or maturity**, and because they view the company as a **technology innovator**."

Figure 1. Magic Quadrant for Application Release Automation



2016

Magic Quadrant

Figure 1. Magic Quadrant for Application Release Automation



2017



# Founder of DevOps Enterprise Summit



# Thank You

