



November 8, 2017  
Week 11, Class #34  
Software Release

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MWF – 10:00-11:30 - Kepner 0095F

# This Week – Dev Ops



## ✧ Monday, 11-6

- Lecture – Web Hosting

## ✧ Wednesday, 11-8

- Lecture – Release Process

## ✧ Friday, 11-10

- Lecture – Maintenance

Last Week

Test

# Dev Ops

Next Week

Risk Management

# Servers, Images, and Hosting

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## ✧ History of Software Deployment

- 1977 - Data Centers
- 1987 - PC
- 1997 - Internet
- 2007 - Web services
- 2017 - Mobile devices

# Modern Deployment

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- ✧ From Closet to Cloud
- ✧ Cheap Hosting \$10/month
- ✧ Open Source software
- ✧ Continuous integration
- ✧ Automated tools
- ✧ Frequent updates
- ✧ Virtual Servers

# Building Images

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- ✧ Operating System
- ✧ SSH Keys
- ✧ Frameworks and Languages
- ✧ Database
- ✧ File system volumes
- ✧ Domain and networking
- ✧ Encryption
- ✧ Application Software

# Virtualization

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- ✧ Virtual server infrastructure - VMWare, VirtualBox
- ✧ Machine Images - Operation System (encapsulated computer disk)
- ✧ Virtual Private Servers - Cloud hosting environment
- ✧ Popular Services
  - <https://amazonlightsail.com>
  - <https://digitalocean.com>

# Steps to Deploy an App

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- ✧ Decide on hosting service
- ✧ Create a server image
- ✧ Create a software application
- ✧ Register and route domain
- ✧ Configure server environment
- ✧ Build automation scripts and policies

# Release Cycle

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## ✧ Cost of Deployment

- Create data center solution
- Final Acceptance Testing
- Rollout



# How often should you release?

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## ✧ Time to release drives the schedule

- From Idea to Go Live
- Schedule compression
- Aggressive Release reveals issues

# Release Cycle

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## ✧ HP circa 1997

- 5 engineers and 3 testers for one year
- Requirements & Design - 3 months
- Code - 6 months
- Test - 3 months
- \$1-2 Million

## ✧ Shrinking World Solutions - 2017

- 1000 hours (start to release)
- \$100,000
- limit the project scope
- Incremental and automated

# See you Friday

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# Release Cycle

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X



✧ Y

■ Z

X



✧ Y

■ Z