

# Gaming your Career

## Using Online Challenges to Develop Yourself and Your Career



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# My Background



- ❧ I've been playing in CtFs (Capture the Flag) events for a decade
  - ❧ Played in the Defcon finals for the past three years (Shellphish)
  - ❧ Collegiate Cyber Defense Competition
  - ❧ Many CtF's available, see [CTFTime.org](http://CTFTime.org)
  
- ❧ I've been writing CtFs since 2008
  - ❧ NetWars
    - ❧ Continuous
    - ❧ Cyber City
    - ❧ Tournament
  - ❧ Other local, small CtFs
  - ❧ My title includes NetWars Architect

# Overview



❧ Why do this?

❧ What can you do?

❧ Cyber City

# Motivation



- ❧ You will never learn if you don't try!
- ❧ "Hands-on exercises not only reinforce the concepts of lectures, they also give you skills you can apply directly in your day-to-day job" ~Ed Skoudis
- ❧ You can try...
  - ❧ At home
  - ❧ On your schedule
  - ❧ In your underpants
- ❧ Find what interests you
- ❧ Use this to get better at what you love to do!

# Fear



- ❧ Top reasons people tell me why they don't try these challenges
  - ❧ I won't do well
  - ❧ I don't know what I'm doing
  - ❧ I don't play games
  - ❧ Games are "childish" or "beneath" them
- ❧ None of us knew how to do this stuff until we tried it
- ❧ There are a lot of people willing to help; ASK!
- ❧ There are lots of resources available online
  - ❧ Google
  - ❧ Chat rooms
  - ❧ Email Lists
  - ❧ Forums

# Gamification



- ❧ According to Wikipedia, Gamification can be used in “**encouraging users to engage in desired behaviors**, by **showing a path to mastery and autonomy**, and by taking advantage of humans' psychological predisposition to engage in gaming.”
- ❧ Increasingly this is how learning (and advertising) is done
  - ❧ Teachers are using this to engage students
  - ❧ McDonald's Monopoly Game
- ❧ Scoring and awards encourage progress

# But I Don't Have Time



- ❧ We all have 24 hours in a day
- ❧ Work with your employer to give you time to develop your skills
- ❧ Pick work projects that feed your interests
- ❧ Let's be honest, you may have to give up time for other activities
  - ❧ TV
  - ❧ Sleep
- ❧ What are you doing this evening?

# Finding Challenges



- ❧ Google
- ❧ CTFTime.org
- ❧ Google for "SANS Pen Test Poster" and look at the back page
  - ❧ A mind map of some of the challenges out there  
<http://www.amanhardikar.com/mindmaps/Practice.html>
- ❧ Use a product from work and beat it up (with permission)
- ❧ Tonight!

# Cyber City



- ⌘ A hands-on cyber range to conduct defensive and offensive training
- ⌘ Physical kinetic components of a city (small scale, 1:87 scale) with real-world control systems and networks
- ⌘ Four city quadrants: Industrial, commercial, residential, and military
- ⌘ Streaming video of the kinetic action
- ⌘ Teaches cyber warriors to recognize and utilize the kinetic impact of cyber missions
- ⌘ Defense, Analysis, and Offense



# Infrastructures Included in CyberCity



- ❧ 5 video cameras to see all kinetic action
- ❧ Power grid with Siemens, Allen Bradley, & Phoenix contact PLCs
- ❧ Water reservoir
- ❧ Traffic light system
- ❧ Military base with weapon system
- ❧ Landing strip
- ❧ SCADA-controlled train
- ❧ ISP infrastructure (routing, DNS, NTP, trouble-ticket system)
- ❧ Bank
- ❧ Hospital
- ❧ Newspaper (with real-time updates to news)
- ❧ Coffee shop (wifi)
- ❧ Social networking site
- ❧ Much, much more

# Conclusions



- ❧ You won't get better if you don't try
- ❧ Ask for help. There are a lot of people who would love to help out
- ❧ Be willing to say "I don't know" or "HELP!"
  - ❧ This is empowering
- ❧ Join us tonight for the challenges

