



Welcome to SSSS!

Secondary Security Screening Selection – for software



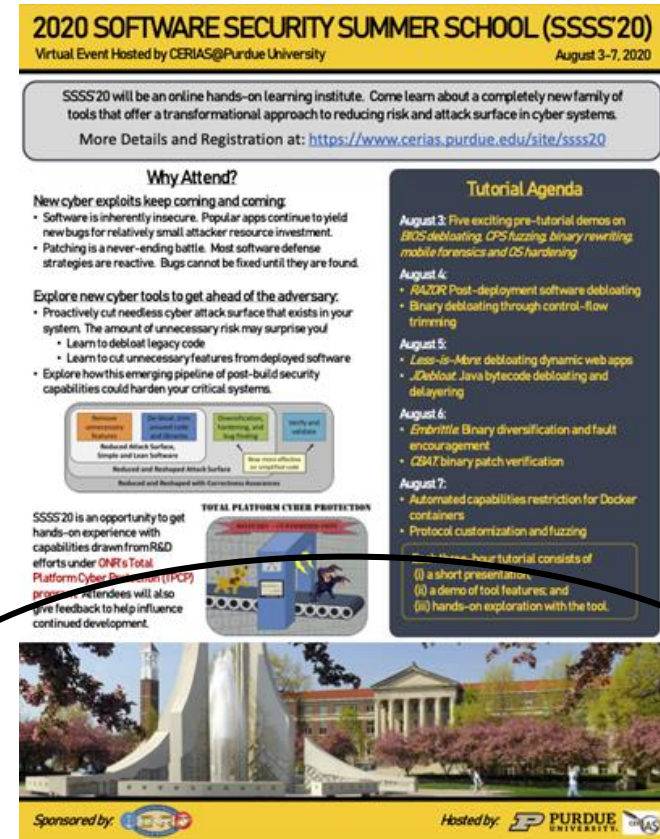
4 August 2020

ACCELERATING TO THE NAVY & MARINE CORPS AFTER NEXT

The contents of this briefing are: **UNCLASSIFIED**

Many Thanks

- Purdue / CERIAS Organizing Team
- SSSS Program Committee
- 8 tutorial teams and 5 demo teams
- The 69 registered attendees!



As hinted by the flyer, we originally had other plans...

Thanks to everyone for their effort to make this *virtual* event a success!

Why we're here

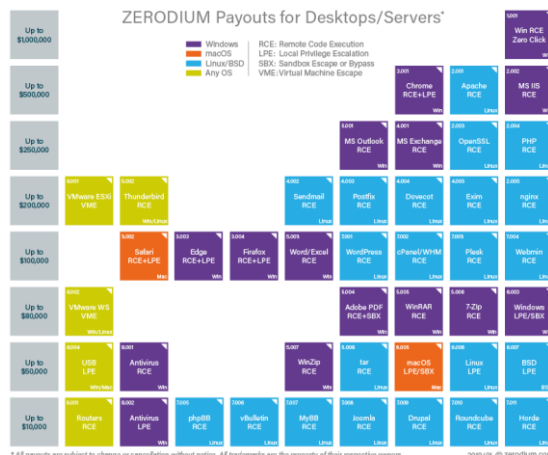
- Cyber exploits keep **coming** and **coming**
- Constant supply of new 0-days:

Competitions:

Pwn2Own:

- Competition where organizers buy 0-days for popular software
- 2017 event paid \$833k for 51 new 0-days
- Microsoft Edge broken, VMWare escape w/o guest tools installed

Marketplaces:



Stuff we've been using forever:

URGENT/11:

- 11 serious bugs in VxWorks (July 2019)
- VxWorks powers many weapon systems
- Went back over **15 years** of releases



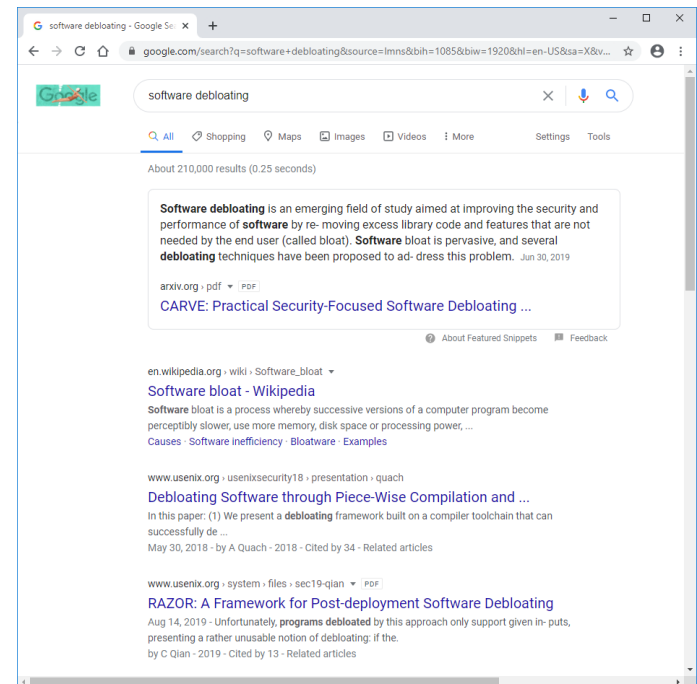
FIGURE: Cyber adversaries

A more proactive approach...

- ONR has been building an ecosystem of tools to proactively take control of your attack surface

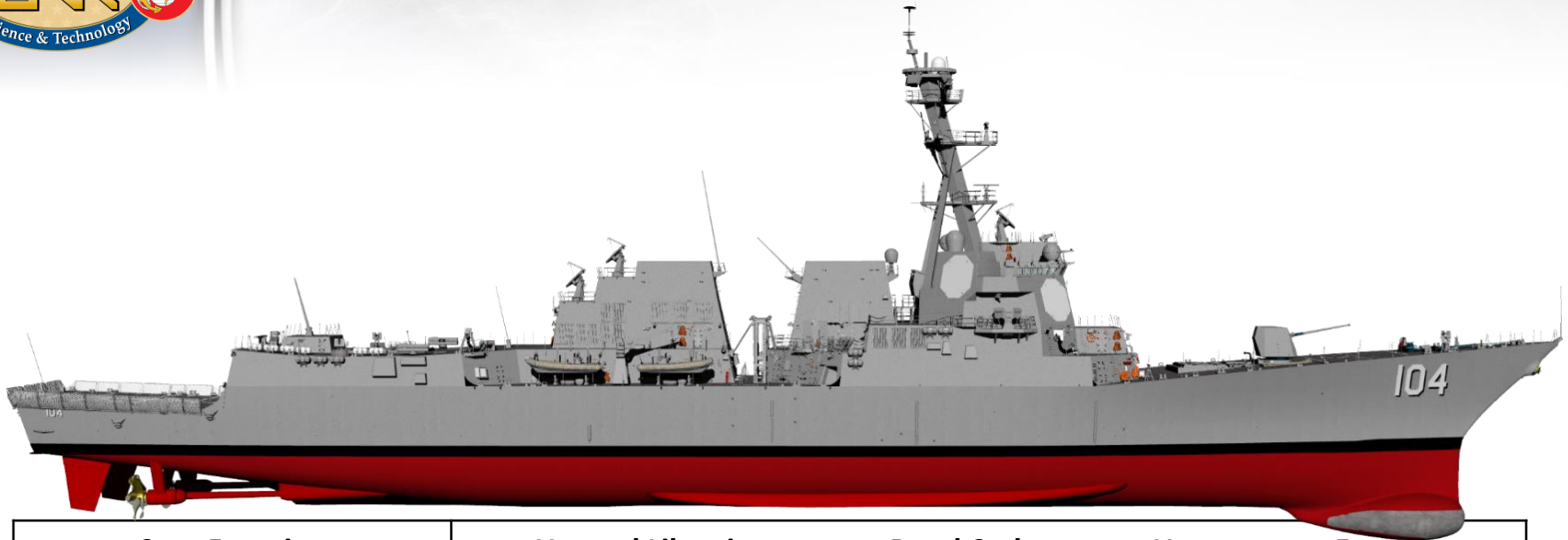
Principles:

- **Don't pay risk for what you don't use**
- **Adapt faster than the adversary can develop**
- **Work with what we've got**
 - Programmers never change
 - No access to source

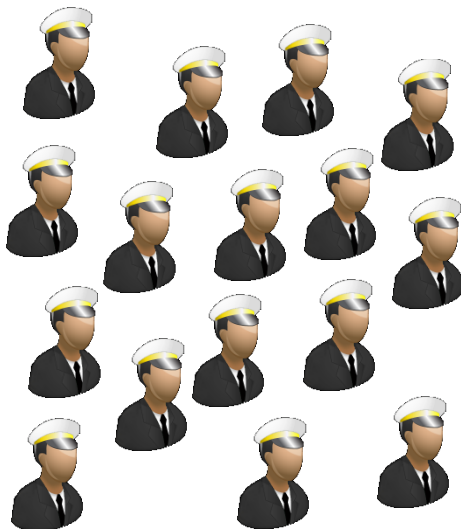


Googling “software debloating” returns mostly ONR and TPCP-related items

Getting underway with software...



Core Function



Unused Libraries



Dead Code



Unnecessary Features

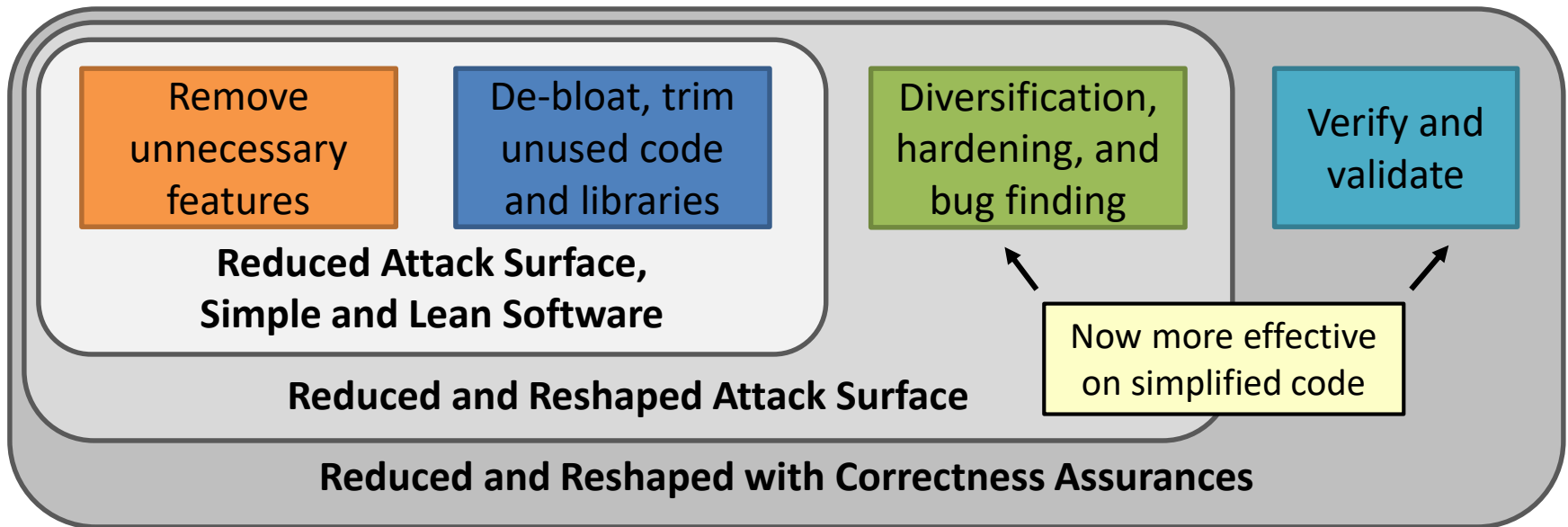


Who are these guys?

Late Stage Software Customization

Debloating and Delaying for Attack Surface Reduction

SOFTWARE SECURITY PIPELINE ENABLED BY TPCP:



- Eliminate bugs before the 0-day / CVE
 - Skip patches, save \$\$\$
- Diverge attack surface from source
 - More flexible software dev processes
 - Easier use of open-source
- Execute lean software

Tuesday	RetroWrite RAZOR
Wednesday	Less is More JDebloat
Thursday	Embrittle CBAT
Friday	Confine yFuzz / CustomPro

SSSS '20 Tools



Your Feedback is Important

- Feel free to ask questions in Webex or Slack
- Contact ONR Cyber Team:
 - Ryan Craven, ryan.craven@navy.mil
 - Dan Koller, daniel.koller1@navy.mil
 - Sam Weber, samuel.m.weber@navy.mil
 - Matt Mickelson, mmickelson@mitre.org
- Complete survey at the end