

Tips for Good Empirical Talks

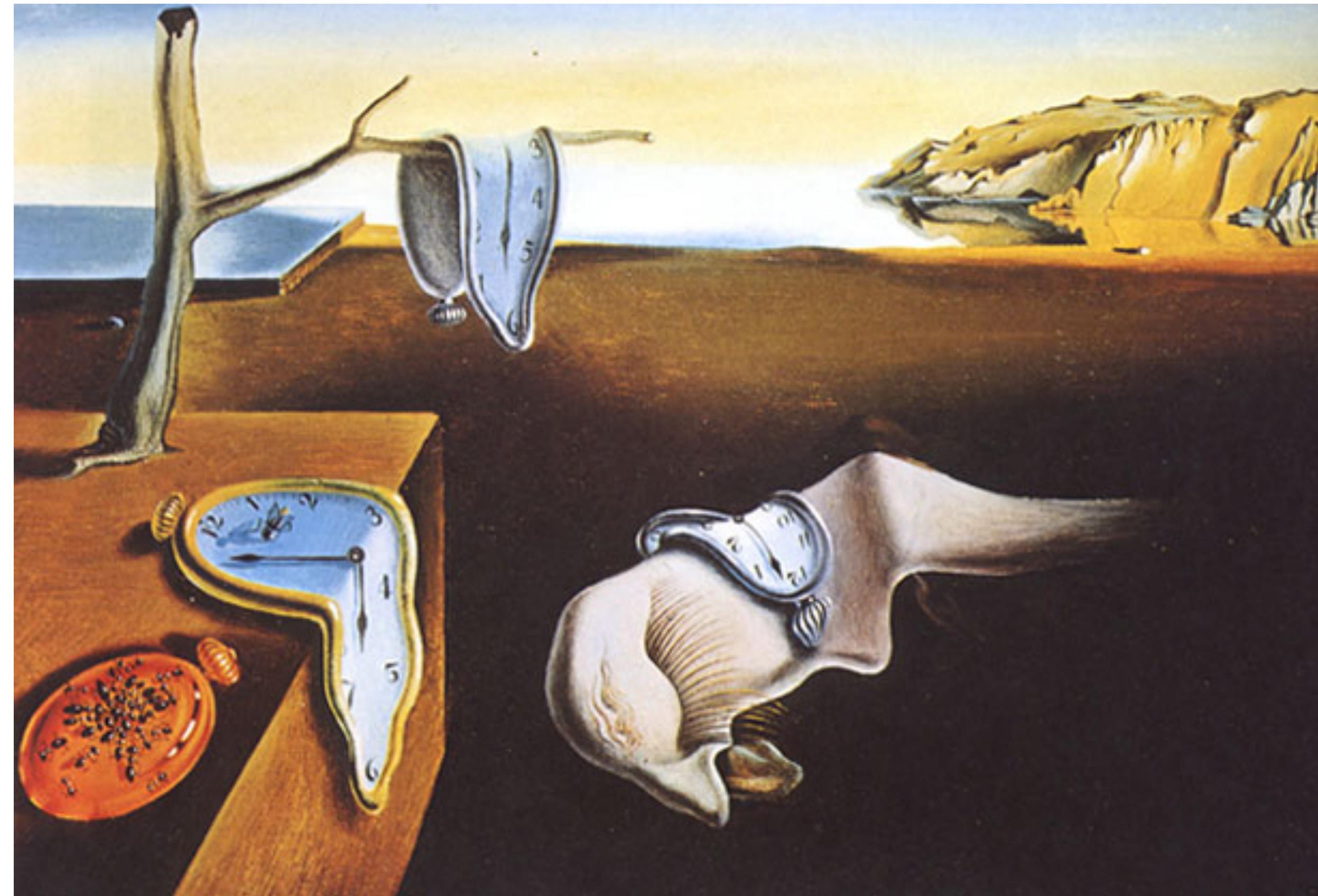
**Liz Izhikevich
(and Zakir Durumeric and Kayvon Fatahalian)**

Who painted this painting?



Salvador Dalí (age 22)

The point: learn the basic principles before you consciously choose to break them



**No one cares about
measurements**

What do people care about?

- What _new_ thing did you find?
 - What are the implications? A vulnerability?

Most Work (time spent) != Most Interesting

- Methodology (which often takes the most time) often is not relevant

Present a Story, Not a Paper

Present a Story, Not a Paper

- Why was the paper written?
- What is meaningful to communicate?
- If the content is alluded to in the intro...50% chance its not important enough to be in the talk

Know Your Audience

- Measurement community: Cares about the data and whats in the data
- Security community: Cares about the attack/defense and the threat model
- Industry community: Care about the takeaway and what we want them to do with it
- (Majority of) Us: Care about understanding the general space? What do you hope to get from it?
- Generally: Audience never interpret data/plots. And they are only half

Convince the audience of something

- What are the 3 points I want the audience to leave with?
 - Do I want them to use a new tool or system?
 - Measure in a new way?
 - Think about future work differently?
- What is the storyline that ties these points together?
 - Strong talks = more memorable = audience leaves with takeaways?

Presentation Transitions Should be Natural

- Should always expect which slide is coming next (story should flow)
- Transition seems awkward? Will be 10x more awkward in person
- Why should come before the what
 - Just presenting sections in paper does not achieve this
- No surprises! Big shift? Prepare them with a transition slide

Talks are a simplified version of paper

- All results should never be included in a talk
- Figures from paper usually never appear in talk
 - Talk figures should be dramatically simplified *
- Edge cases and related work usually dont belong in security/measurement talks
 - Systems talks rely a bit more on prior systems

Each slide should have one point

Slide titles matter

- Meaningful slide titles provide convenience and clarity for the audience
- Slide titles across entire presentation should summarize the talk
- Titles should be kept short-medium in length

Show, don't tell

Outline slides are horrible...they really only tell you there will be an intro/end

This is not a story!

The slide has a blue header bar with the word 'Outline' in white. Below the header is a white content area containing a bulleted list of topics:

- **Introduction**
- **Related Work**
- **Proposed System Architecture**
 - ❖ Basic design decision
 - ❖ Dedicated hardware for T&I
 - ❖ Reconfigurable processor for RGS
- **Results and Analysis**
- **Conclusion**

Use data / figures to convince audience

- One figure per slide
- Explicitly explain the figure!
 - MUST introduce the axis
- Simplify figure. Use keynote/powerpoint to make it
 - 1-2 lines for a plot
 - 1-2 table rows

Simplify Tables

Service	Traffic	Censys	Shodan	Previously
		Leaked	Leaked	Leaked
Fold Increase in Traffic per Hour				
HTTP/80	All	7.7*	15.7*	17.2*
	Malicious	4.0*	5.8	7.3
SSH/22	All	2.4	2.6*	1.5*
	Malicious	2.5	2.8*	1.7*
Telnet/23	All	72.6*	1.06*	201
	Malicious	1.6*	1.3*	1.8

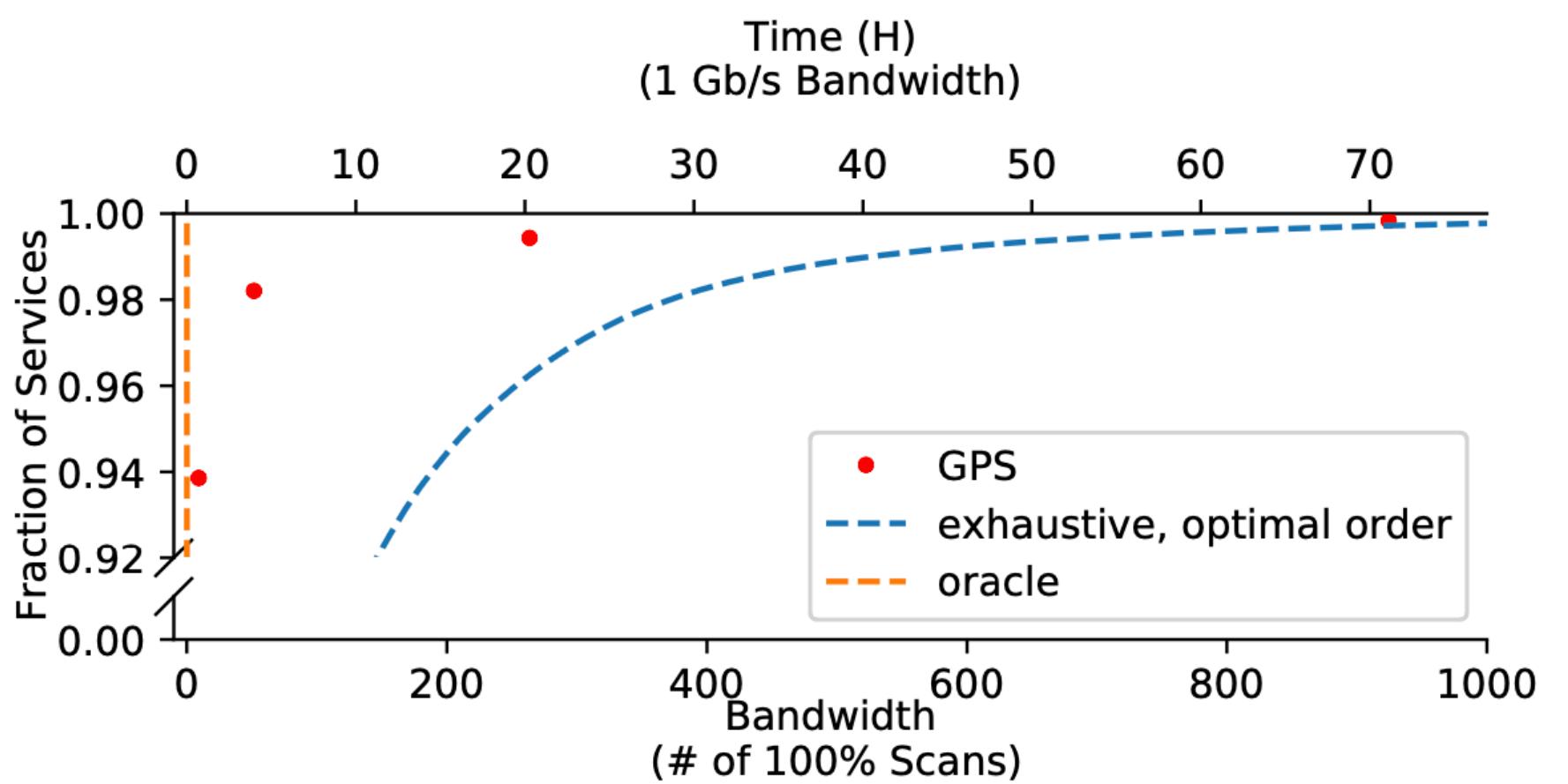
VS

Recycled addresses increases attacker traffic

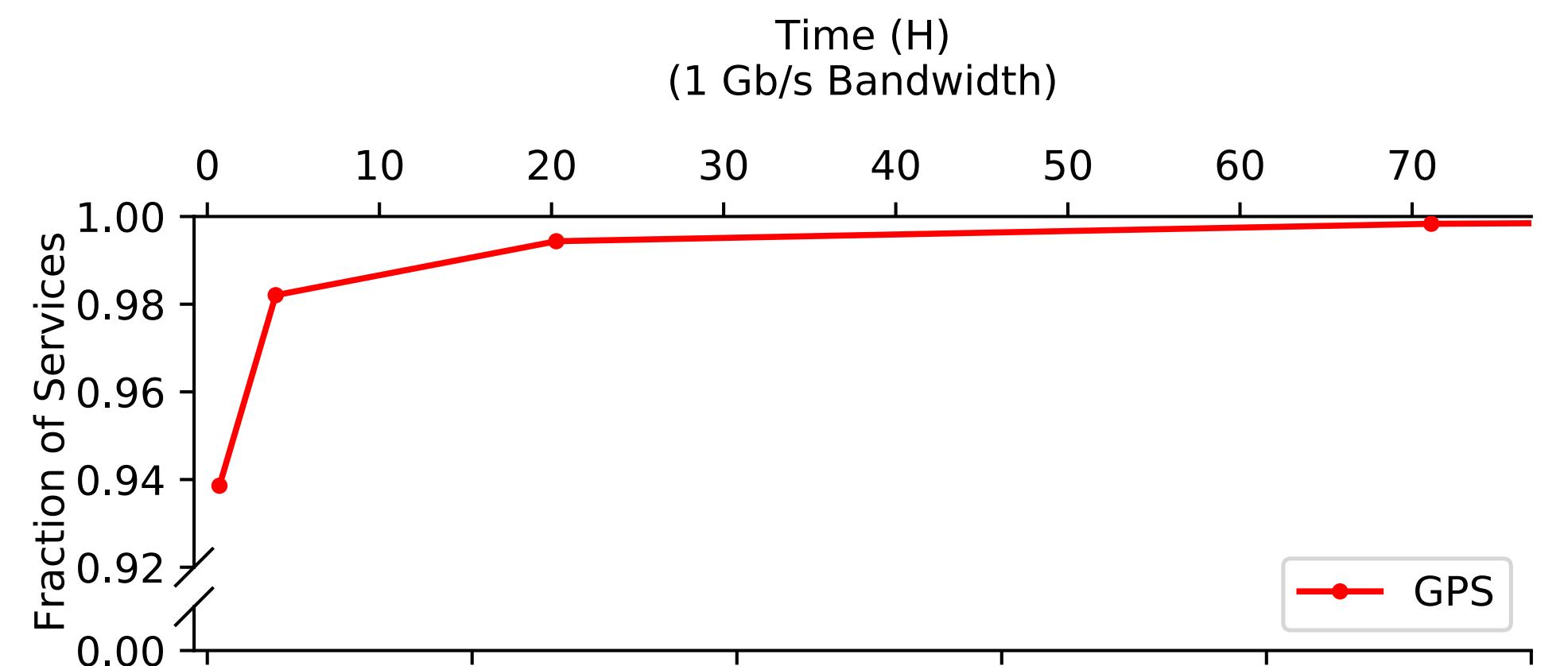
Monitored Service	Recycled Honeypots Increase in Attacker Traffic per Hour
HTTP/80	7.3x
SSH/22	1.7x
Telnet/23	1.8x

Table 3: Impact of Internet Service search engines—Attackers are more likely to attack a service that is currently, or has been previously, indexed by Censys or Shodan. Statistically significant

Simplify Figures



VS



(a) **Service Discovery (Censys):** GPS finds 94% of services using 21× less the amount of bandwidth compared to optimal port-order probing (2K ports, 100% scan, 2% seed).

GPS' predictions find 99% of services in < 24 hours

Conclusions Matter

- Summarize the three key points that anchor your story
- Leave those key points during Q&A
 - The last slide is precious real estate – use it!