Running a bug bounty

Crowdsourcing security

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Also known as..

What is a bug bounty program

- Essentially bribing strangers to tell us their facebook 0days
- Sometimes blows up in our face, most of time works pretty well
- Storytime – 21 year old Collin + bank
- The common scenario obviously pretty broken

Security at facebook

Set the ~scene~

- Targeted external audits, internal audits, cced on diffs
- Tools – code reviews, static/dynamic analysis, HACK
- Bug bounty is a complimentary security system
- Good security bugs are rare gems to us

Our haul of bugs

Facepalm group

- Don’t click cancel
- &makeprofile=1
- Overly large emoticon posts in a group shut it down

Privacy

- Big deal (DYI bug was expensive)
- Forgetting privacy checks. Read vs mutate
- Detect secret groups

Unknown unknowns

- One fine day…
- These bugs lead to deep dark forgotten parts of your code
- <CENSORED USERNAME> bug goldmine

Corporate 0day reckoning

- Outside researchers don’t know what code you wrote and what you purchased
- This will happen
- Always a total bloodbath

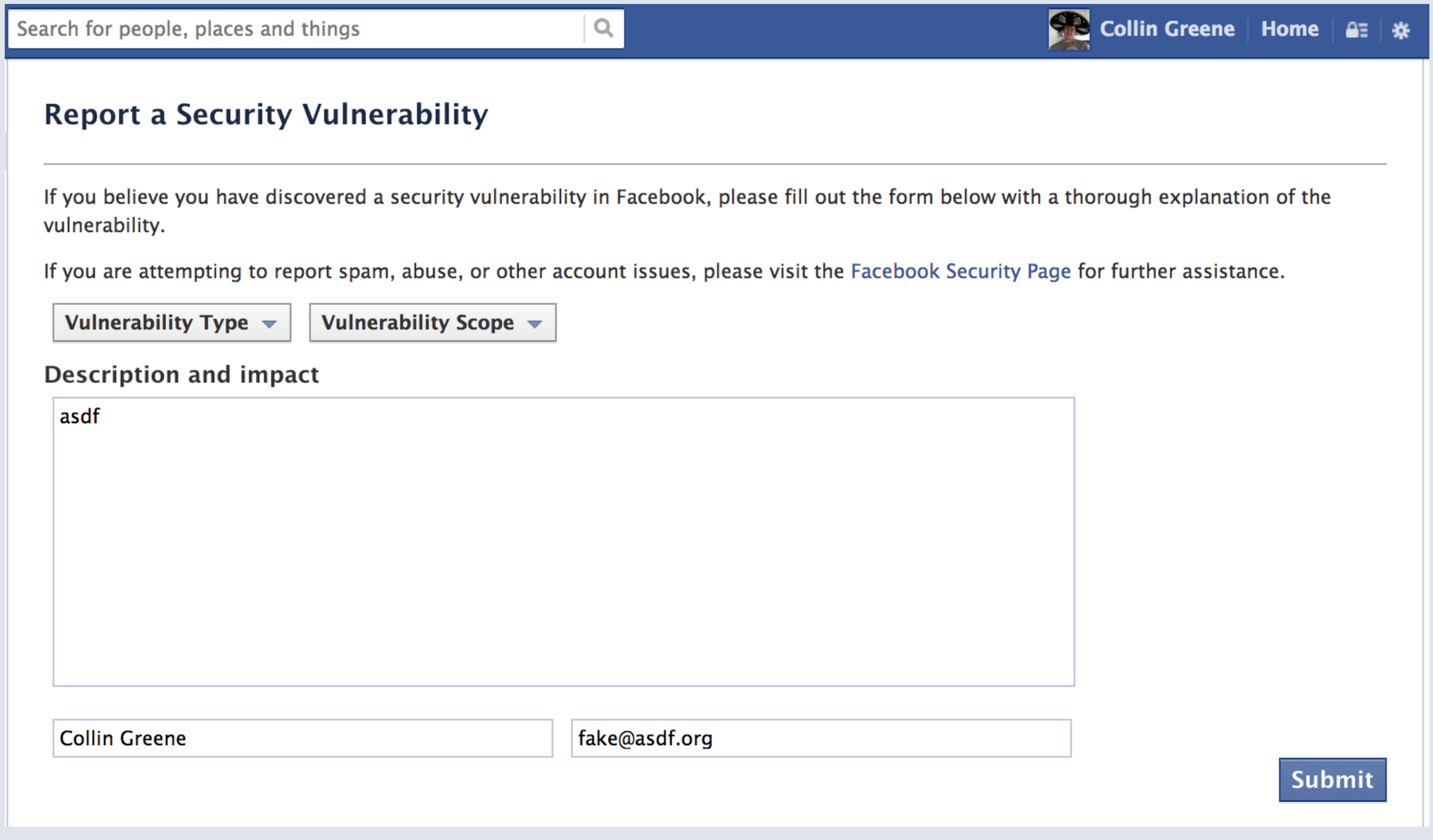
“Logic”

- Groups + Blocking = ???
- Any picture is an xss. DNS shenanigans
- Javascripts Math.random() not random enough.

Wacky

- Poke
- Brokenness in the world at large
- To be or not to mp3

Stay on your toes



Components of bug bounty program

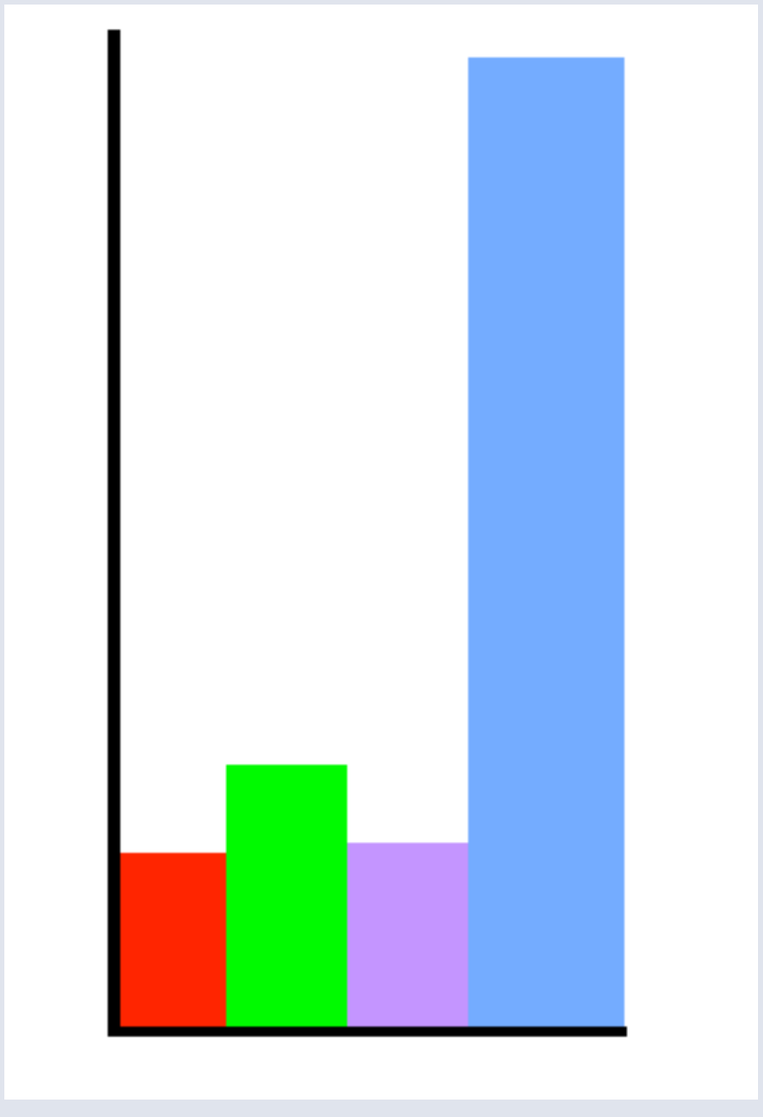
- Complimentary security system
- Bug bounty programs a good thing for both sides

So does it work?

- HELL YES
- Didn’t expect it to work. We had a bet…
  - Ended up getting 20+ good bugs in first 24 hours
  - Alternative outlet to black market (big topic)
  - Contrast bug bounty vs code review

Fake graph

- Inputs (time, $$). Output: Good security bugs
- This is the best deal in the universe



Deetz

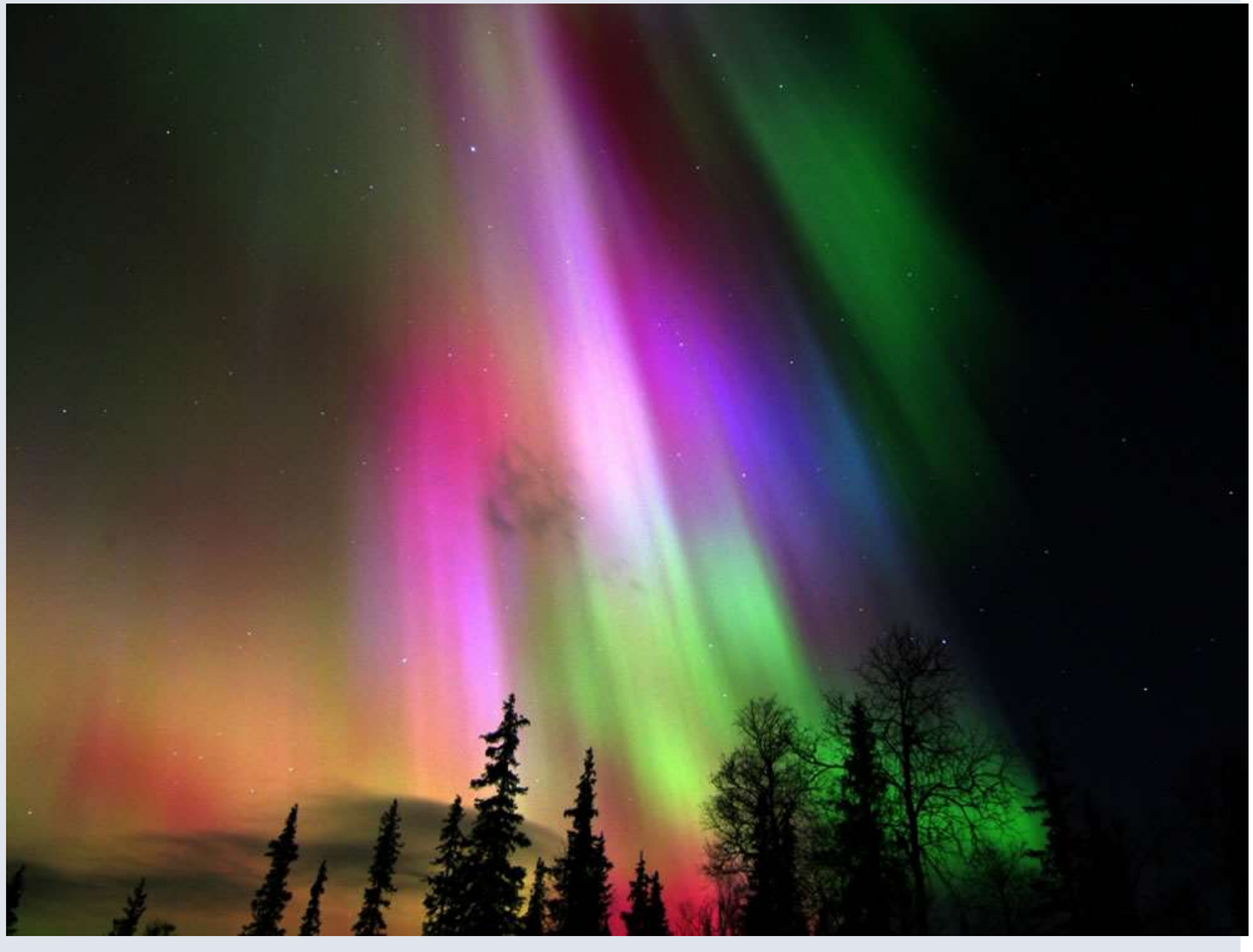
- Started July 2011
- Received a BOATLOAD of legit bugs. Frontloaded less than one would expect.
  - ~ %14 “unbreak now” over last 3+ years
  - Paid out over TWO MILLION DOLLARS (dr evil)

Some reasons to start a bug bounty

- It is already happening, embrace it
- “Paying for success” – incentives are aligned
- Driving signal for future deeper security audits
- Can be used to find the teams having security issues and offer to help them more
- Even playing field, anyone can submit and get paid
- Makes vendors quake in their boots

The REAL reason to start a bug bounty

- The one(s) that got away
- It is illuminating to see the issues that slipped passed everything you threw at them
- Harnessing the creativity of lots of people attacking you



Whats the day to day like

- We read about 100 reports before we get an actionable one. This can feel like taking a facebook quiz
- Read reports, triage, verify, dig, fix, diff, pay, communicate to researcher, look for similar bugs, find out why it slipped through
- Nontechnical considerations: PR, legal, etc.
- Language barrier. English skill != HaxOring skill.
- Must love bugs!

Essential tensions

- You are bribing someone who has an 0day
- Can be confrontational, some things seems like bugs but are not, you get to convince external people who are upset to hear it that they are wrong
- Is a customer service and PR job in addition to technical (I don’t always do great at this…)
- Anyone can turn around and use bug on zuck then call up cnn

Pitfalls

- Scattershot – people go for easiest stuff first
- Must be responsive with emails and fixes
- Jokers testing bugs on the CEOs account
- Might not work for traditional software companies
- Stressful – messing up a single report has high consequences.
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Lessons learned / cool facts

- “It works”
- People don’t argue with you much
- Being generous and putting ego aside
- Direct effort via incentives and gatekeeper
- Most good bugs come from a small % of submitters

The submitters

- 21% are native english speakers
- All types - youngest was 15 year old
- Hired people from this program
- best possible interview question is "Do you know about our bug bounty program?”
- Since been running 2 years it has helped start lots of security careers (consulting, etc)

The system working – stories of two people

Questions