AUTOMATED HUMAN VULNERABILLITY SCANNING WITH AVA

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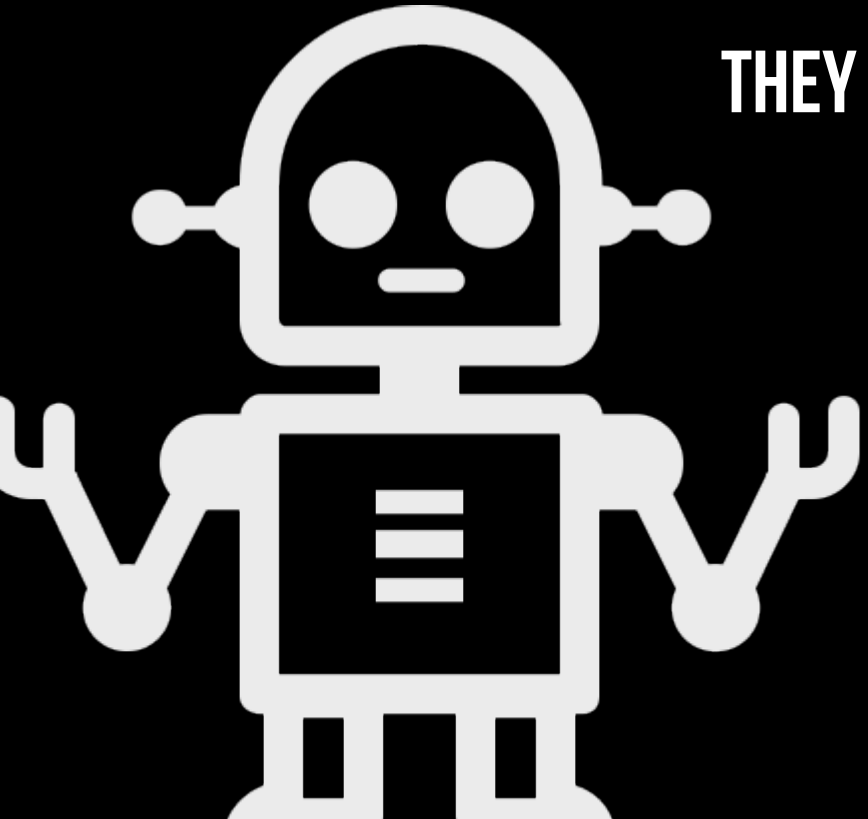
#protectyourpeople

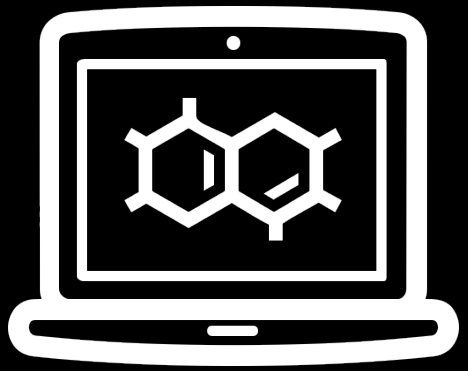
WE ARE COMFORTABLE WHEN WE TALK ABOUT TECHNICAL VULNERABILITY

WE DO NOT EMPATHISE OR SYMPATHISE WITH MACHINES

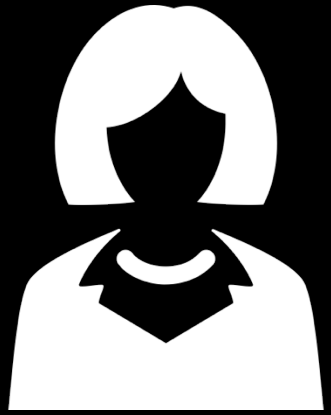


THEY ARE TANGIBLE, INANIMATE OBJECTS.

TECHNOLOGY IS ONLY PART OF THE SECURITY PICTURE



TECHNOLOGY



PEOPLE

PROCESS

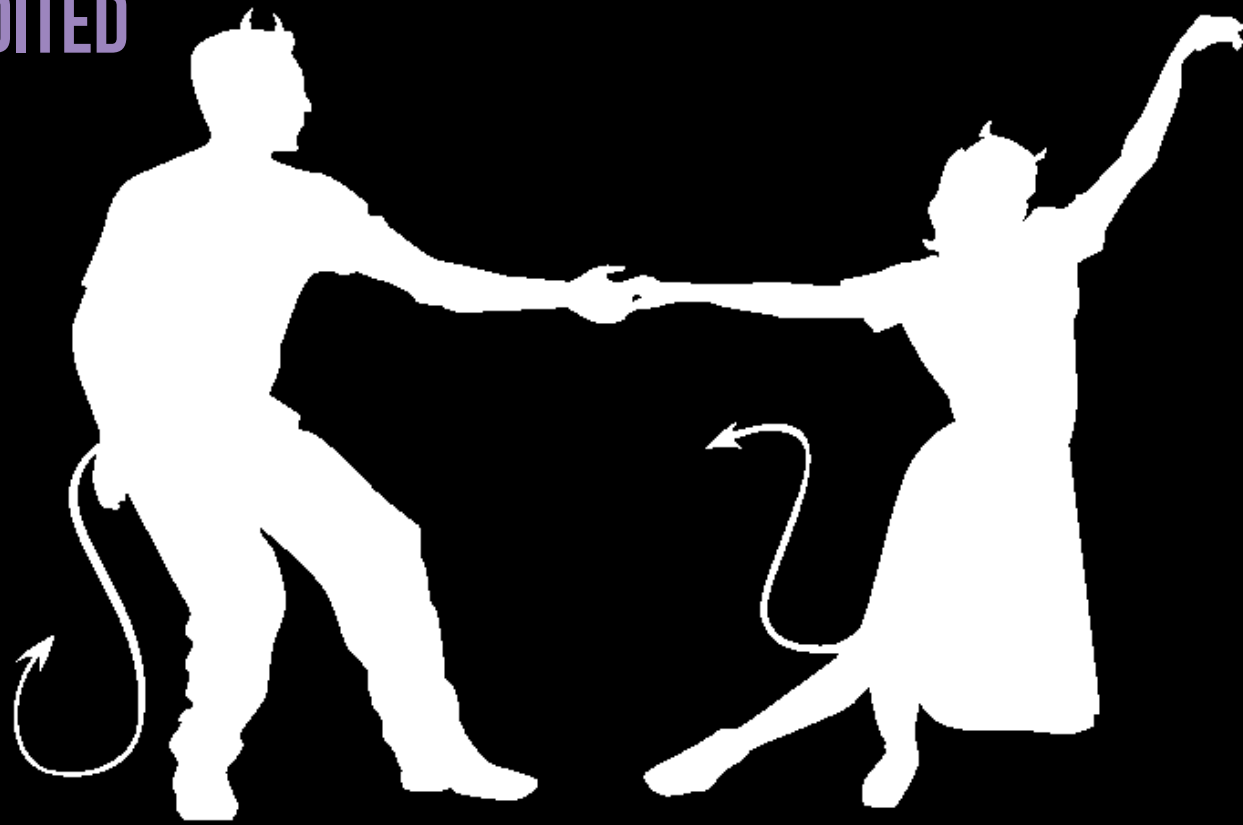
TECHNICAL SYSTEMS ARE:

REVIEWED

SCANNED

PENETRATION TESTED

PROCESSES ARE AUDITED




WHAT ABOUT PEOPLE?

IN THIS TALK

1. WHY IS HUMAN-CENTRIC SECURITY SO COMPLEX?

2. ARE THE CURRENT SOLUTIONS EFFECTIVE?

3. A FUTURE FILLED WITH HOPE AND SCARY QUESTIONS?

THE PROBLEM WITH PEOPLE

HUMAN VULNERABILITY IS NATURAL

HUMANS ARE SUFFICIENTLY PREDICTABLE
TO MAKE IT SUITABLY ANNOYING
WHEN WE FAIL TO
PREDICT THEIR BEHAVIOUR.

MODERN APPROACHES


BORDER DEVICES ARE NOT ENOUGH


SECURITY
AWARENESS
EDUCATION REALLY
SUCKS

POSTERS DON'T WORK

STOP IT ALREADY.


COMPLIANCE HAS US RACING TO THE BOTTOM

RED TEAMING AND SOCIAL ENGINEERING PENETRATION TESTS

OUTSOURCED PHISHING PROGRAMMES

THE 3 R's OF HABIT FORMATION

1 REMINDER

The cue or trigger that starts the habit.
(Example: Traffic light turns green.)

ROUTINE 2

The action you take. The habit itself.
(Example: You drive through the intersection.)

REWARD

3

The benefit you gain from doing the habit.
(Example: You get closer to your destination.)

If the reward is positive, then you'll have a desire to repeat the action the next time a reminder pops up. Eventually, this repeitition will form a new habit.

LIMITATIONS

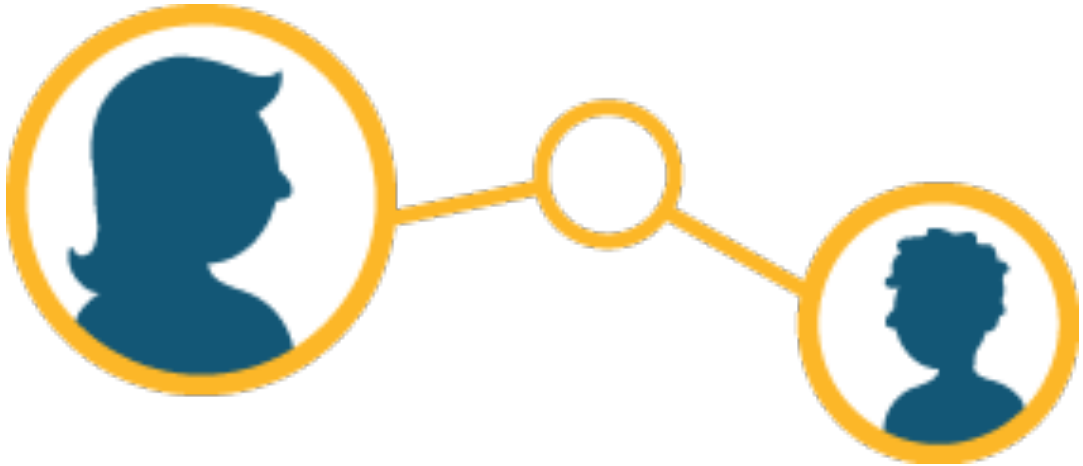
1. TARGET CONNECTIVITY IGNORED
2. TEACHING OUTSIDE OF THE WORK ENVIRONMENT
3. LACK OF REINFORCEMENT TO BUILD HABIT AND BEHAVIOURS
4. LACK OF MEASUREMENT
5. LACK OF CONTEXT

AVA

AVA
FIRST GENERATION PROOF OF CONCEPT 3- PHASE AUTOMATED HUMAN VULNERABILITY SCANNER

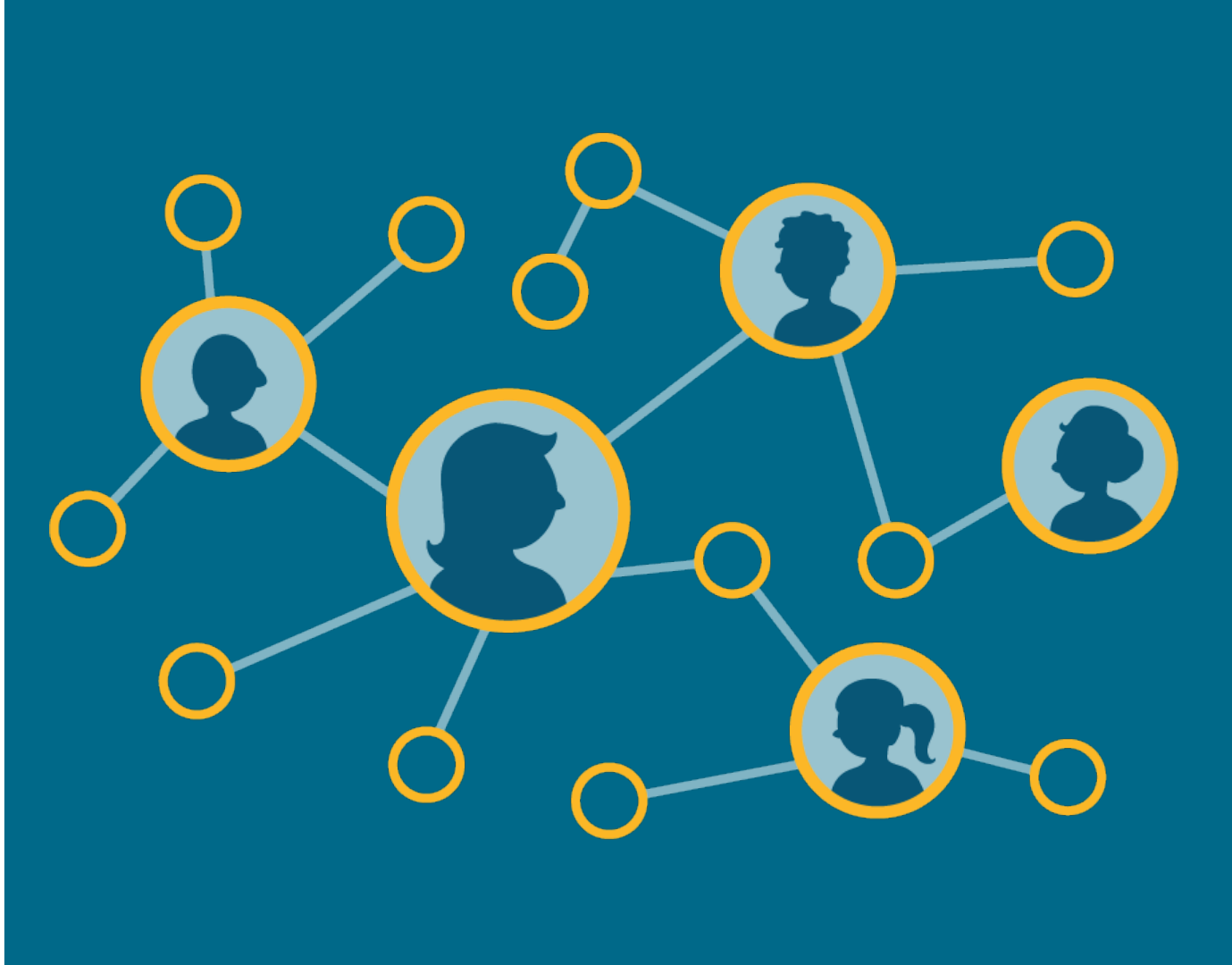
PHASE 1

KNOW




WE DON’T KNOW WHAT OUR ORGANISATIONS LOOK LIKE

HUMAN SECURITY RISK IS MAGNIFIED BY CONNECTION



ACTIVE DIRECTORY
TWITTER
LINKEDIN
FACEBOOK
EMAIL PROVIDERS

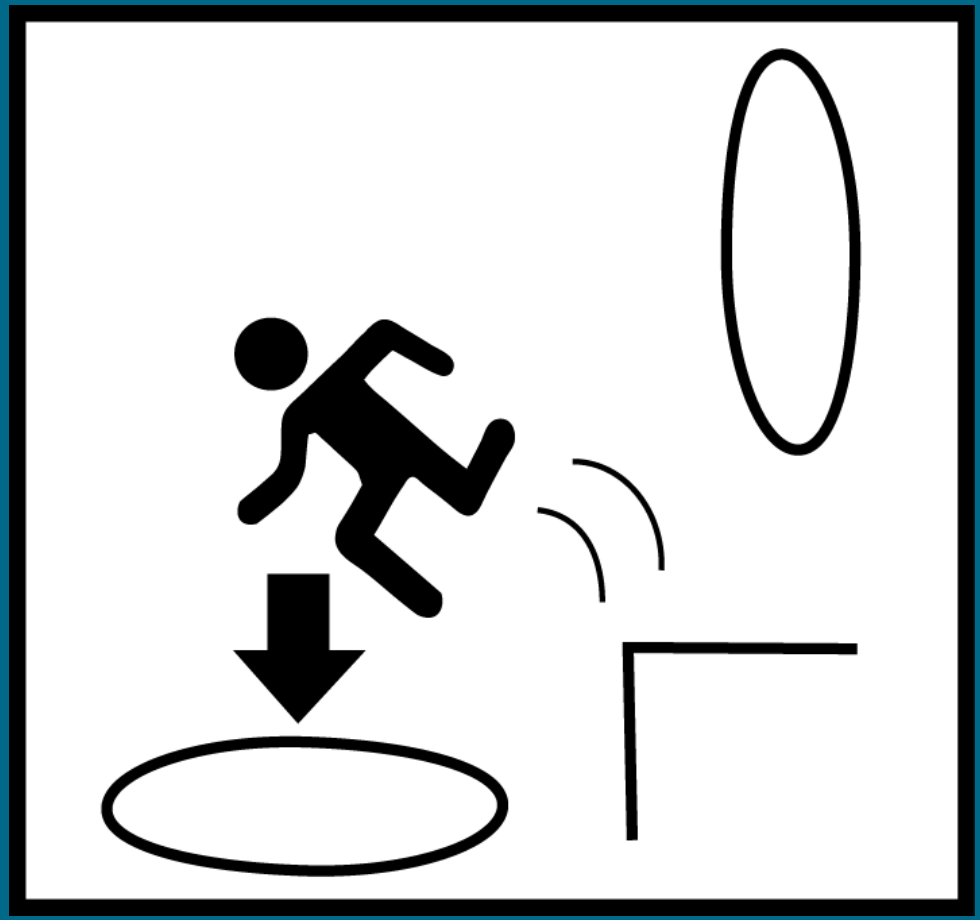
PEOPLE
IDENTIFIERS
GROUPS
RELATIONSHIPS
DATA

FRIENDS	LAST LOGIN	LOCATION
CONTACTS	PW EXPIRES?	TIME STAMPS
FREQUENCY	DISABLED?	SENDER
ALIASES	INFLUENCE	RECEIVER
PROFILES	ADMIN?	USER AGENT

PHASE 2

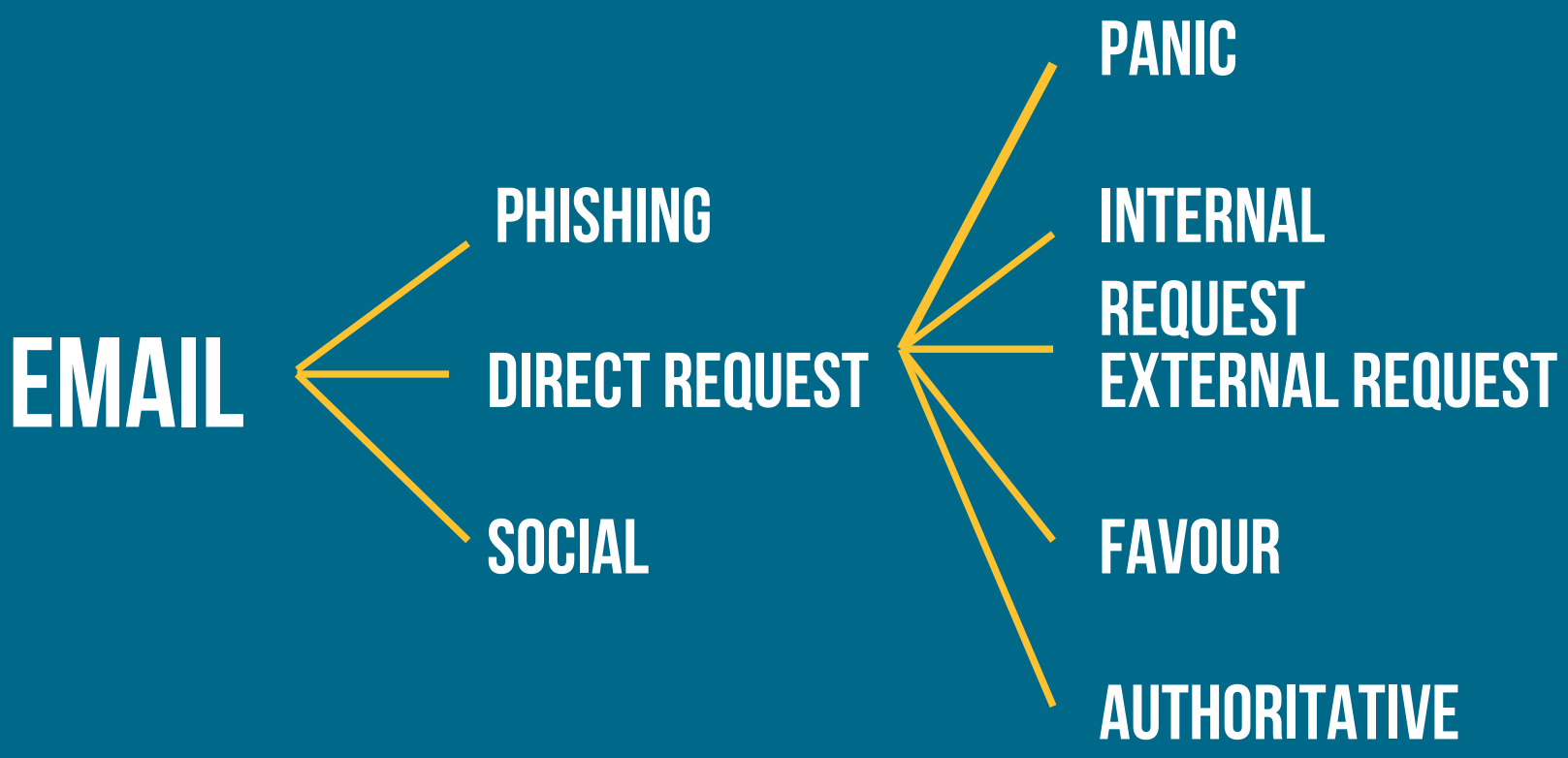
TEST

THREAT INJECTION AND BEHAVIOUR MONITORING



EMAIL
SOCIAL NETWORKS
REMOVABLE MEDIA
FILES AND HONEYPOTS
SMS

ATTACK VECTORS THAT MEAN SOMETHING



EMAIL ATTACKS THAT GO BEYOND PHISHING

The URL may be different on different messages.
Subject: Security Alert: Update Java (*See Kronos Note)
Date: February 22, 2013

USER GENERATED AND PUBLICLY SOURCED ATTACKS

If you require assistance, please contact the Help Center.
****
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Oracle has released an update for Java that fixes 50 security holes, including a
critical hole currently being exploited in the wild.
The IT Security Office strongly recommends that you update Java as

REMOVING THE BOUNDARIES BETWEEN BUSINESS AND PERSONAL

SECURITY FAILS WHEN IT IS TREATED LIKE A SPECIAL EVENT

INSTANT, SCHEDULED AND RECURRING

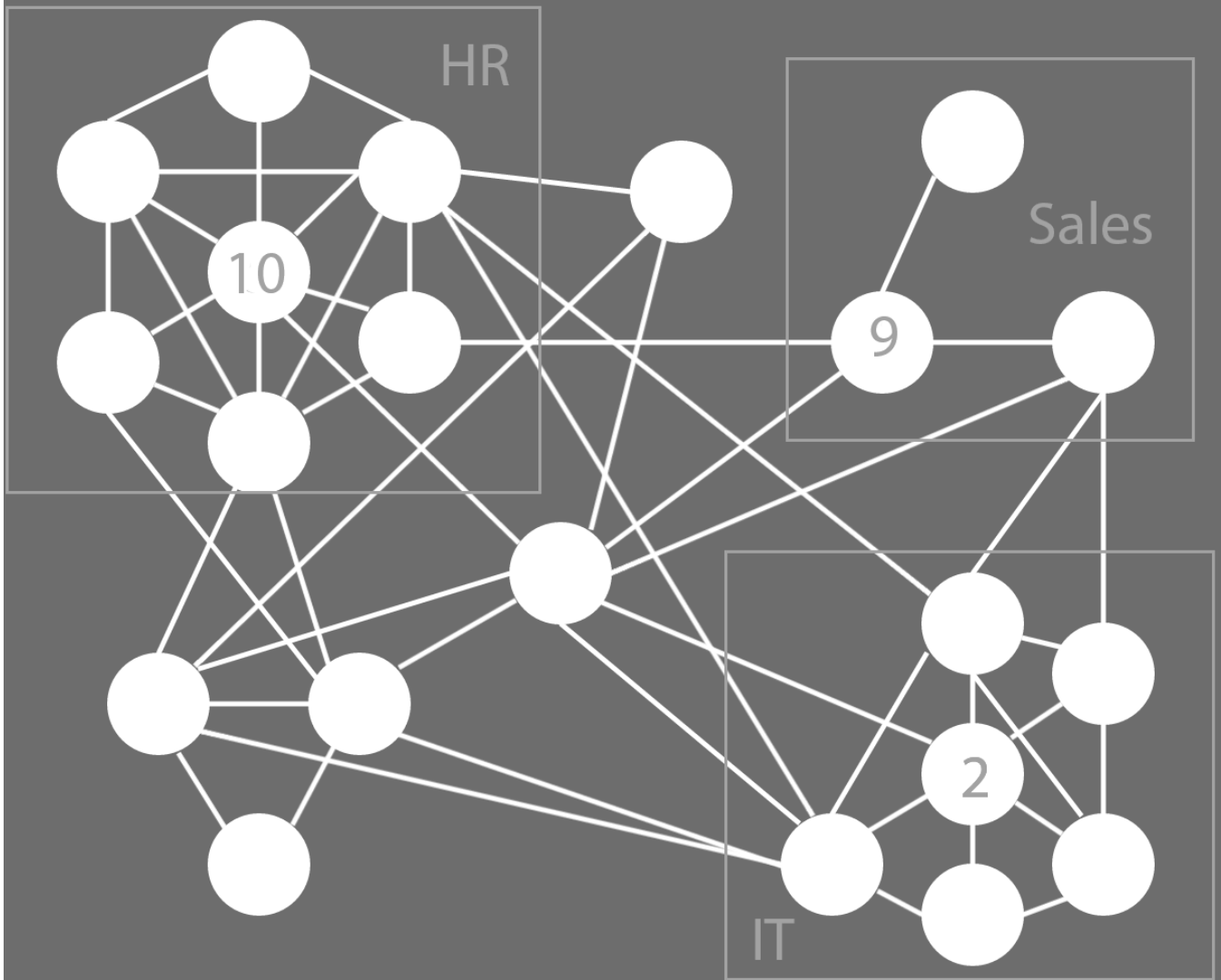
GIVE THE OPTION OF SUCCEEDING
AND REINFORCE GOOD BEHAVIOURS

PHASE 3

ANALYSE

BEHAVIOUR VS. TIME

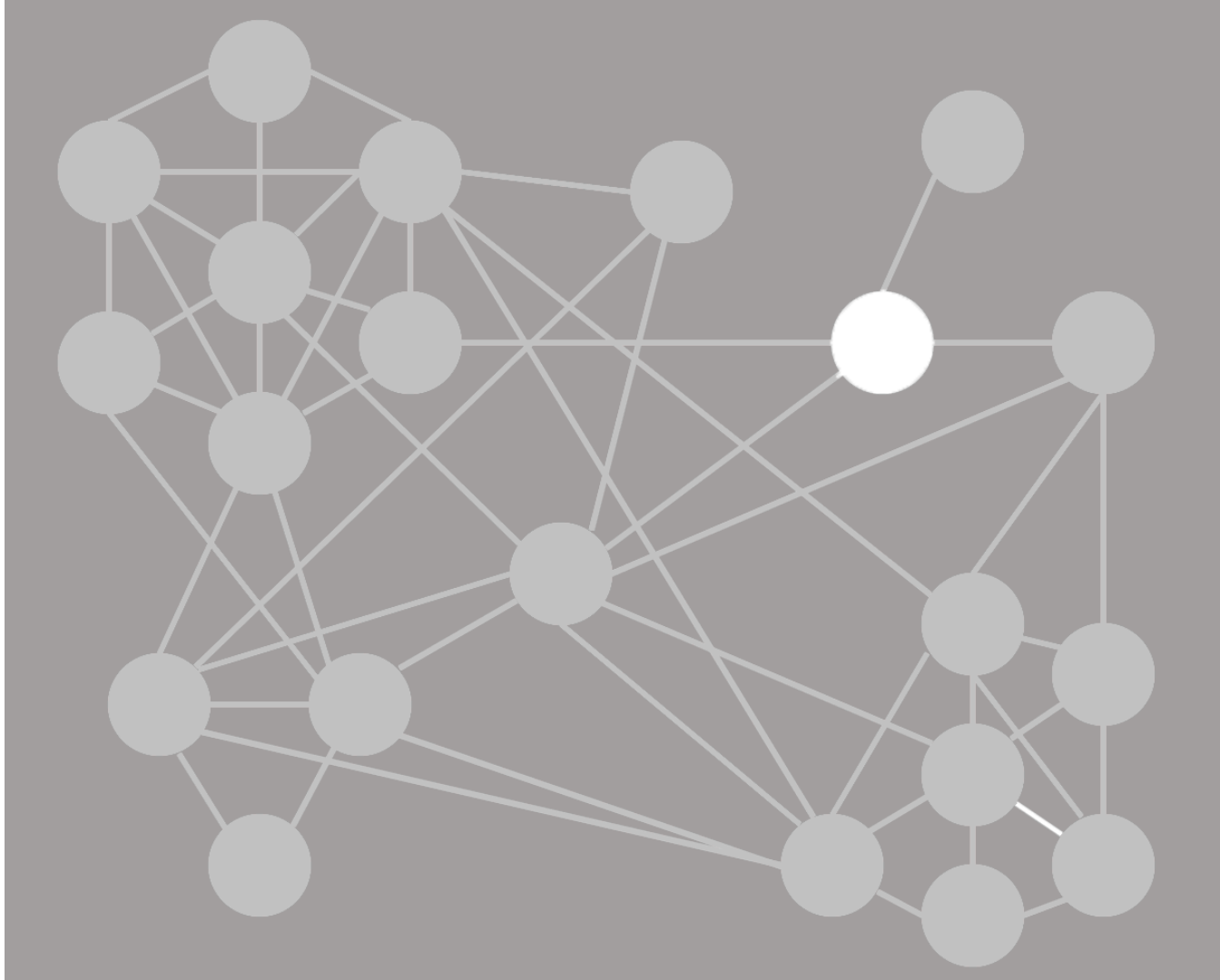
MEASURING IMPACT OF TRAINING



AND NOW FOR SOMETHING A LITTLE BIT DIFFERENT


BRIDGES, WEAK LINKS AND TARGETING

PIVOTING AND PROPAGATION



YOU KNOW WHAT WOULD BE FUN?

PREDICTIVE RISK BEHAVIOUR ANALYSIS

TECHNOLOGIES

- DJANGO
- POSTGRESQL
- CELERY
- REDIS
- BOOTSTRAP

- OPEN SOURCE
- GPL
- DOCKER

- INTEGRATES WITH EXCHANGE, AD AND GOOGLE APPS FOR BUSINESS

DEMO


DEAR DEMO GODS
PLEASE BE KIND.
HERE IS A KITTEN.
I HOPE IT APPEASES YOU.
FROM
LAURA

CASE STUDIES

THE PROCESS

- CANDIDATE AND VOLUNTEER REQUESTS SUBMITTED TO SOCIAL MEDIA AND CONTACTS
- VOLUNTEERS BRIEFED
- REMOVED VOLUNTEERS INCLUDING CHILDREN, STUDENTS OR HEALTH DATA
- ACTIVE DIRECTORY USERS AND GROUPS COLLECTED FROM ACTIVE DIRECTORY SERVER AND STORED IN JSON FILES
- JSON FILES PROCESSED TO REMOVE PERSONAL INFORMATION
- AVA KNOW USED TO PARSE AND IDENTIFY PATTERNS

[SWITCH TO CASE STUDY]

BE YOUR OWN CASE STUDY

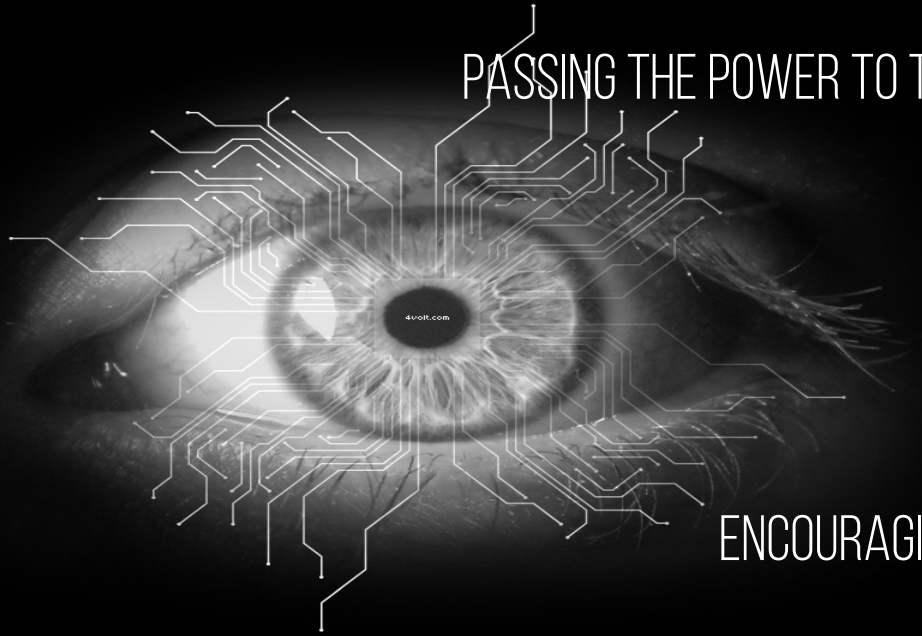
DETAILS, INSTRUCTIONS AND SCRIPTS AVAILABLE

HTTP://AVA.READTHEDOCS.ORG/EN/LATEST/

CHALLENGES

PRIVACY

BALANCE BETWEEN WHAT YOU NEED TO SEE AND WHAT YOU'D LIKE TO SEE



PASSING THE POWER TO THE PEOPLE NOT THE MANAGERS

ENCOURAGING COMMUNITY AND COLLABORATION

OPENNESS, HONESTY AND PLAIN ENGLISH

ALIAS MANAGEMENT

CONVINCING ACCOUNTS

ACCOUNTS NEED HISTORY

MAY BE COMPROMISED
AT ANY TIME

MOMENTUM

NEW SHINY TOYS NEVER HAVE A LONG LIFE SPAN

SMALL ACTIONS ON A REGULAR BASIS

SCHEDULING AND AUTOMATION

GAMIFICATION AND INCENTIVES.

WHERE NEXT?

FROM RESEARCH PROJECT TO REAL LIFE

TESTING
CONTINUOUS INTEGRATION
ROADMAP DEVELOPMENT
FEATURE DEVELOPMENT

SECURITY CULTURE CHANGE AS A SERVICE?

COLLABORATION

IF YOU ARE READING THIS AND WORK FOR THESE PLACES, WE WANT TO TALK

GOOGLE
FACEBOOK
TWITTER
LINKEDIN
MICROSOFT

PLUS

ANY ORGANIZATION THAT WANTS TO DO SAFE, CONSENSUAL HUMAN SECURITY SCIENCE


WHAT ABOUT PEOPLE?

TL;DR

1. HUMAN-CENTRIC SECURITY IS COMPLEX

2. AVA HOPES TO BRING A NEW APPROACH, GET INVOLVED

3. WATCH THIS SPACE, MUCH MORE TO COME

LEARN MORE OR GET INVOLVED

@avasecure
HTTP://AVASECURE.COM

OPEN SOURCE (GPL)
HTTPS://GITHUB.COM/SAFESTACK/AVA
NOW WITH DOCKER BUILD

QUESTIONS?

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