WELCOME TO THE 11TH ANNUAL HACKING CONFERENCE

The Institute of Internal Auditors
Chicago

ISACA
Chicago Chapter

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TALES FROM FORENSIC INVESTIGATIONS

AGENDA

INTRODUCTION

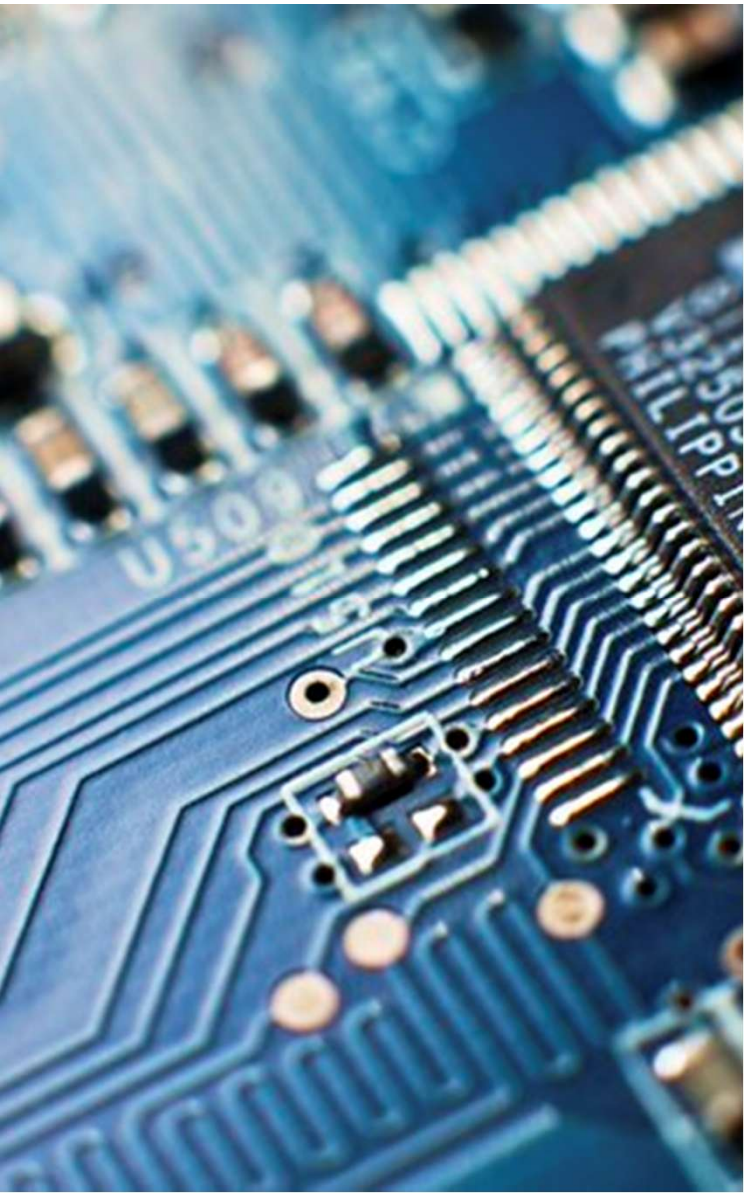
FORENSICS OVERVIEW

FORENSIC TALES

FOUR GOALS OF AN INVESTIGATION

DIY VS OUTSIDE HELP

PREVENTION TIPS

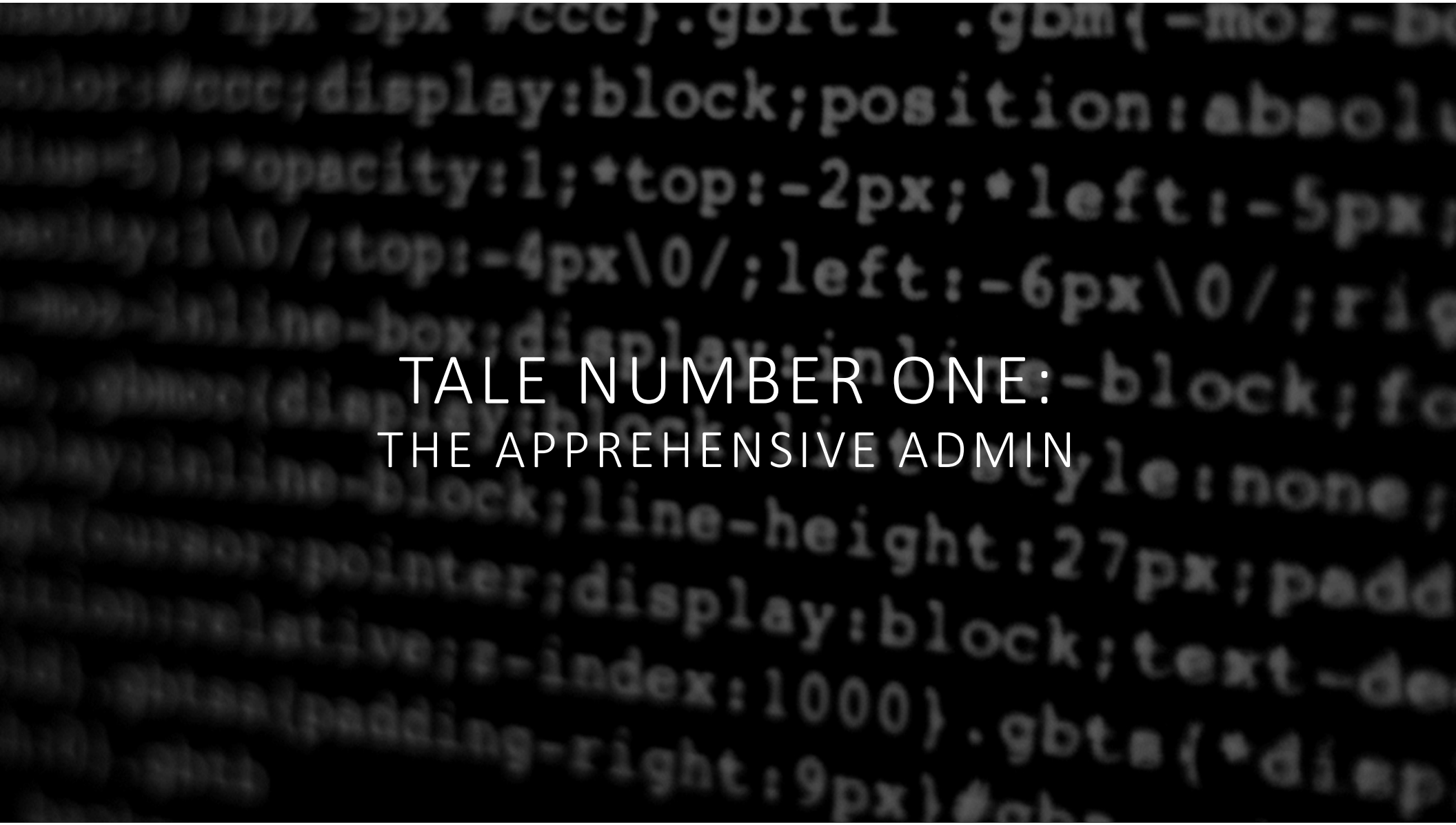


STU DEKEN

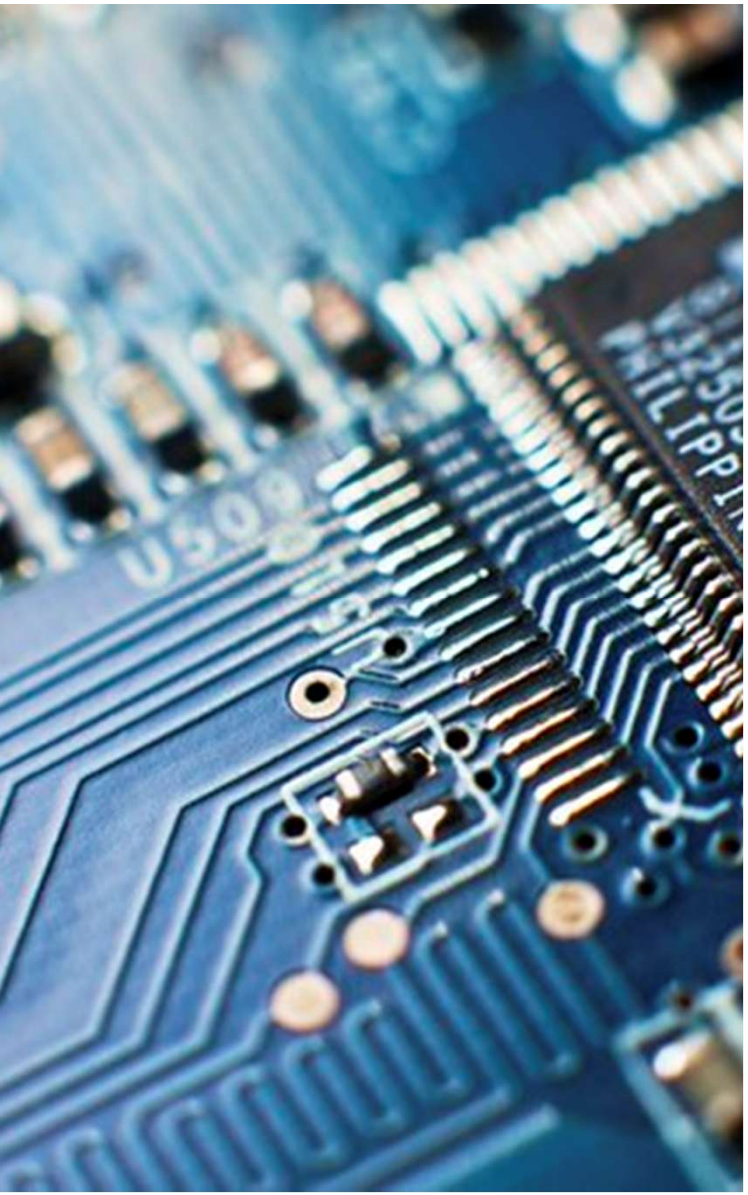
- Digital Investigations Manager, RubinBrown
- Former police officer
- Computer crimes task force
- Expert witness testimony
- Litigation support, fraud investigations, misconduct, email and system compromise

FORENSICS OVERVIEW

INVESTIGATION FOUNDATION

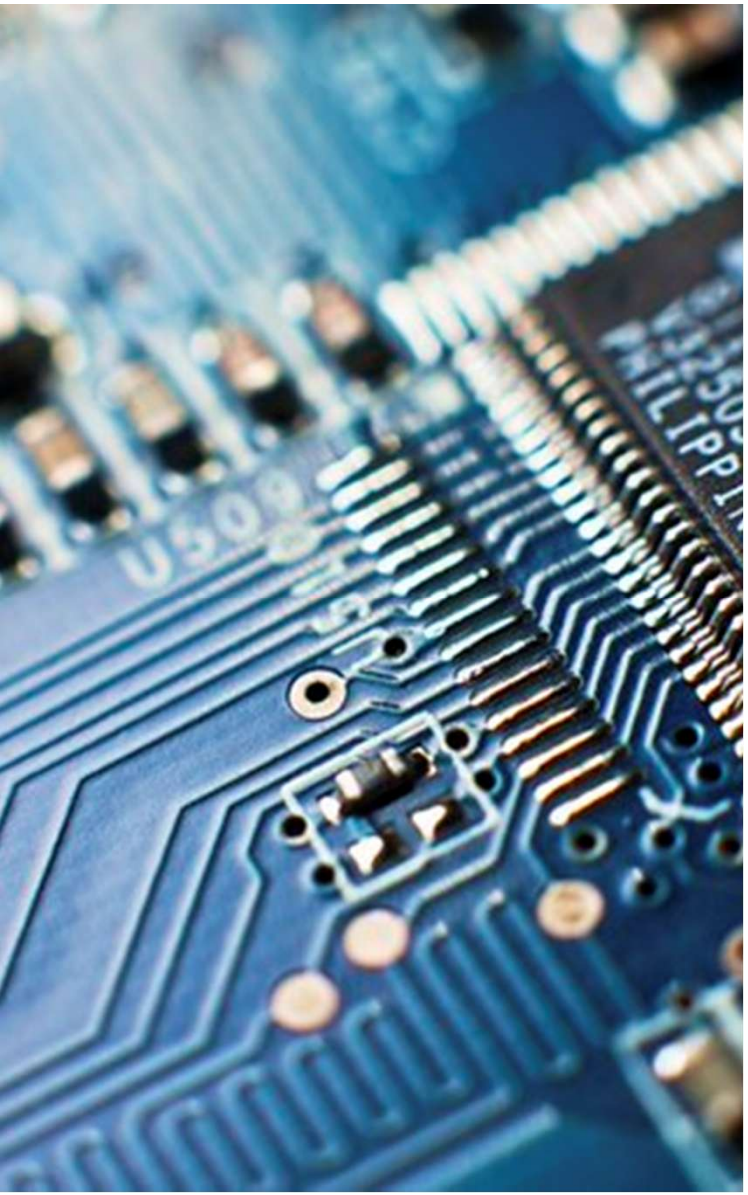


TALE NUMBER ONE:
THE APPREHENSIVE ADMIN



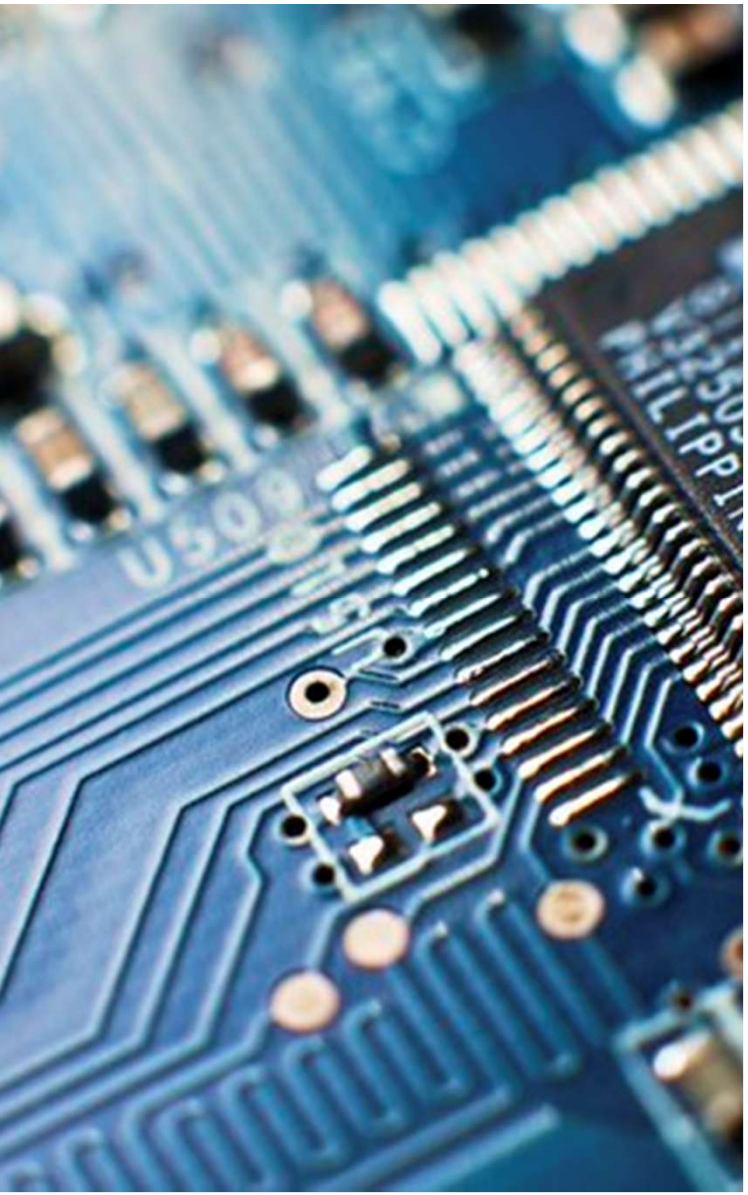
THE APPREHENSIVE ADMIN

- Leadership of a local nonprofit organization was worried one of their Exchange Administrators was reading sensitive emails to/from members of the leadership team.
- They contacted us, seeking confirmation.
- We initiated a forensic investigation.



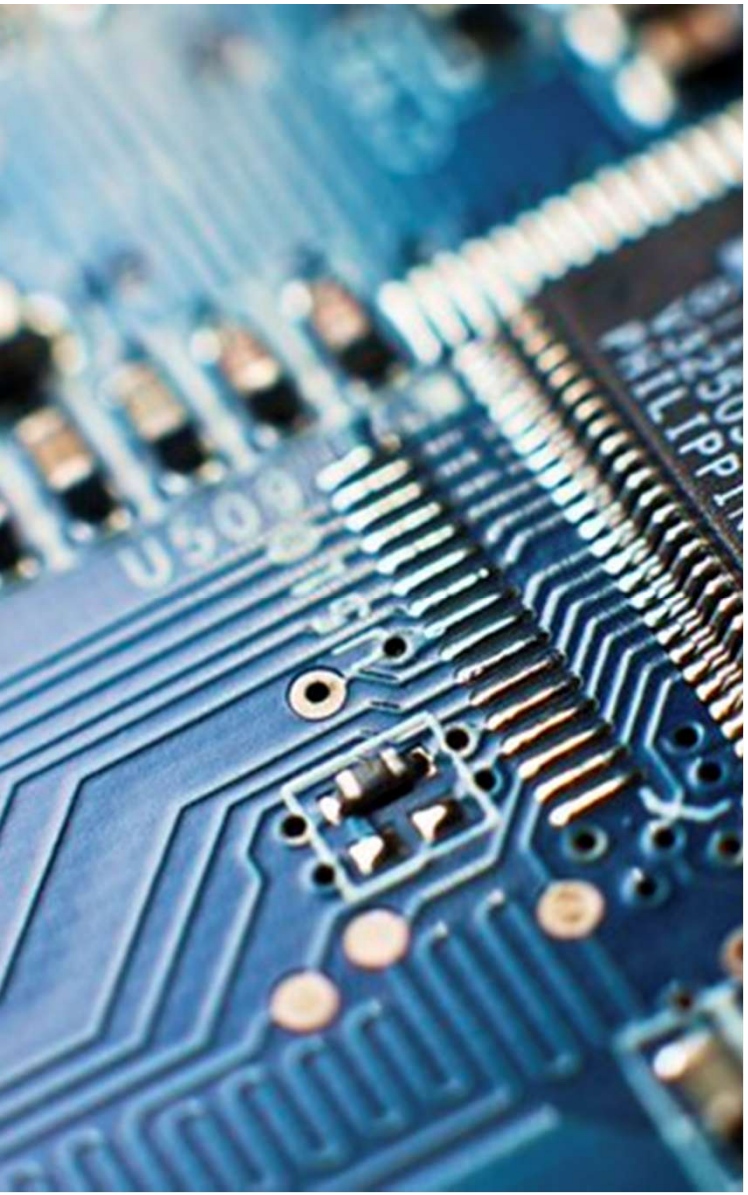
FORENSIC TIDBIT

- Microsoft logs actions in the Microsoft365 environment via the Unified Audit Log.
- These actions include logins, emails sent, emails deleted or moved, documents accessed in Sharepoint, etc.
- One of the logs that is captured is called “Folderbind” which indicates that a user accessed a specific mailbox (theirs or someone else’s).



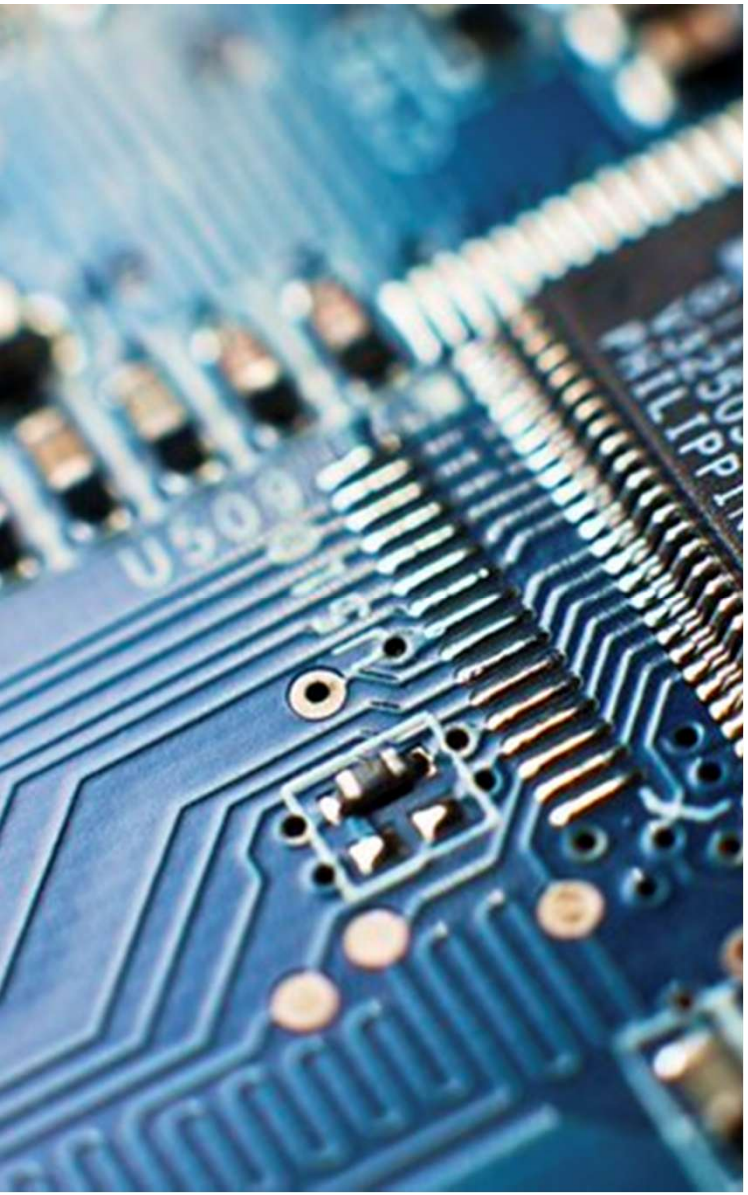
INVESTIGATION QUESTIONS

- Are there any “Folderbind” logs between the subject of the investigation and other users, specifically members of leadership?
- What days and times did it occur? Could it line up with work-related duties?
- Did any of the other Exchange Administrators have similar activity?
- Can we determine anything else about the suspect’s activities?



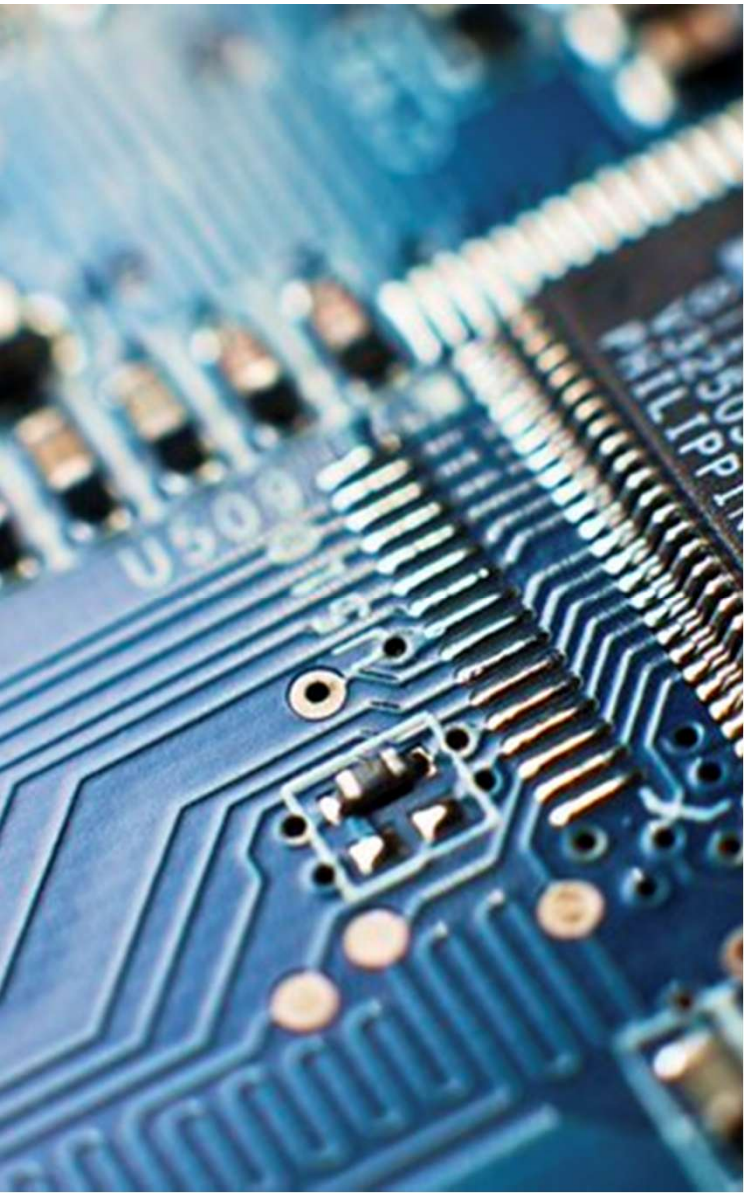
INVESTIGATION RESULTS

- The suspect did have numerous “Folderbind” actions to mailboxes, largely contained to the leadership
- Days and times were widely varied and included weekends, holidays, and late night/off work hours.
- No one else had similar activity.
- We were able to demonstrate some specific messages accessed via the “Update” log.



AFTERMATH

- Why didn’t the in-place alerts to the IT team catch this?
- How can it be prevented in the future?

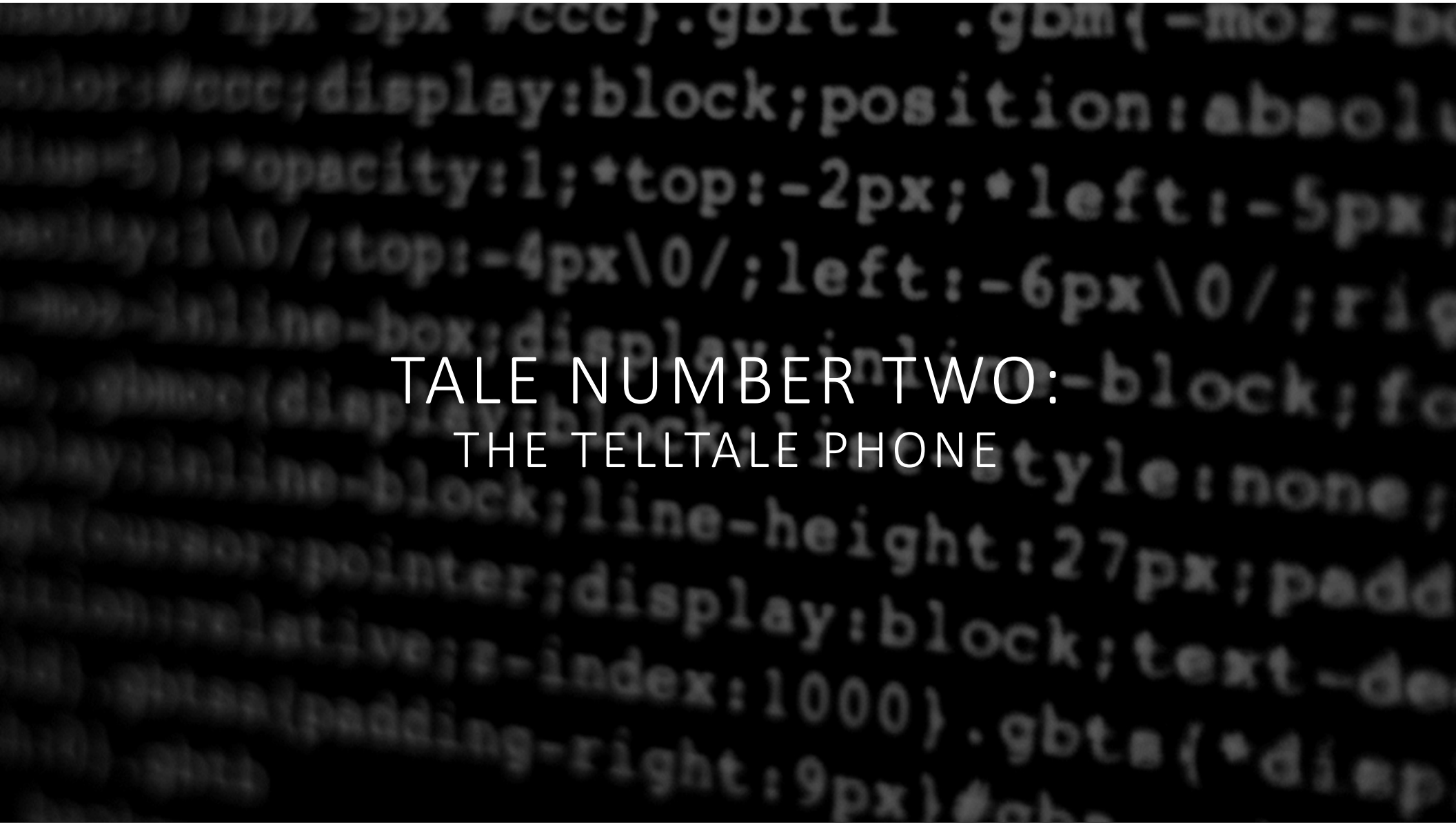


LESSONS LEARNED

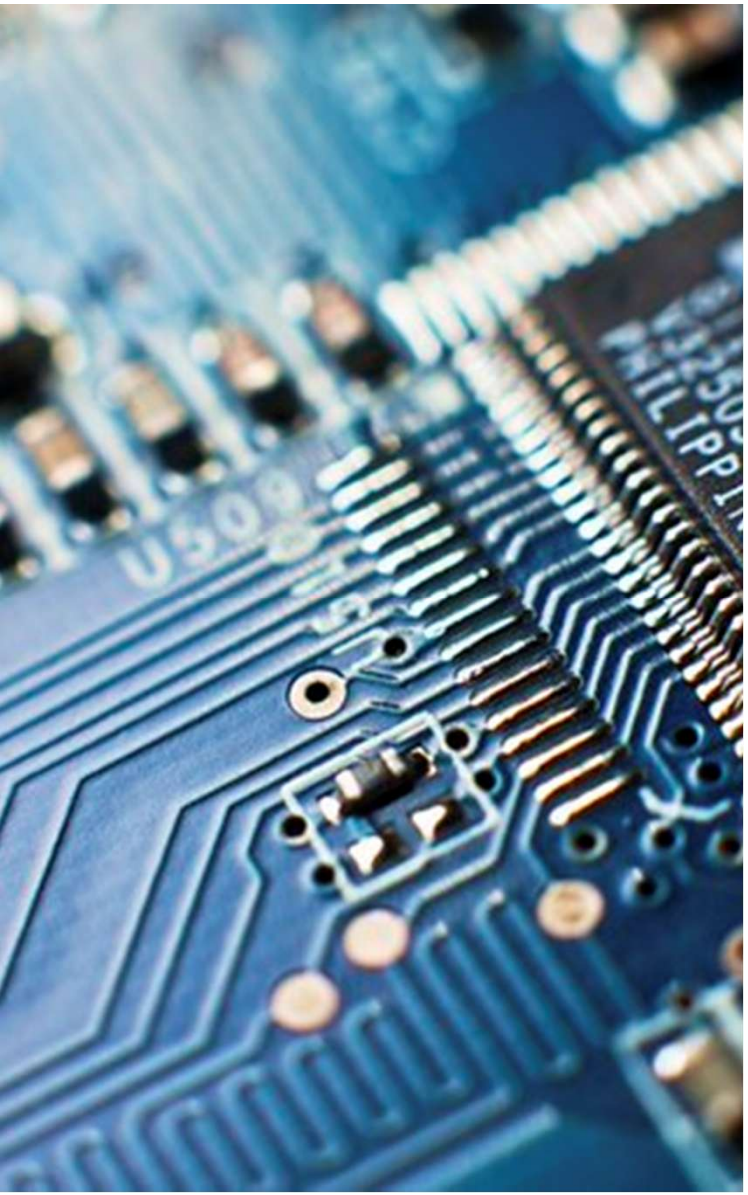
- Most digital activity is going to leave traces
- Even knowledgeable people often can’t avoid leaving evidence
- Trusted members still need oversight
- Never assume that processes work- testing is critical

POLLING QUESTION ONE

HAVE YOU HAD AN INCIDENT THAT REQUIRED A FORENSIC INVESTIGATION IN THE LAST YEAR?

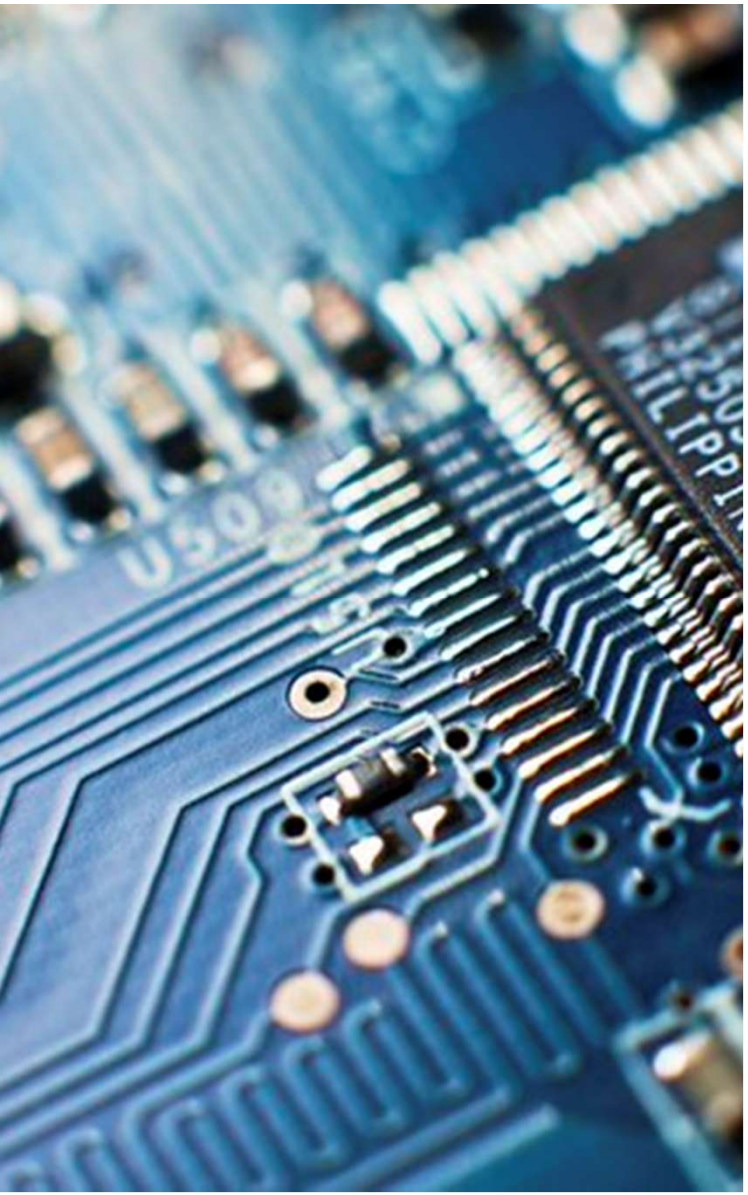


TALE NUMBER TWO:
THE TELLTALE PHONE



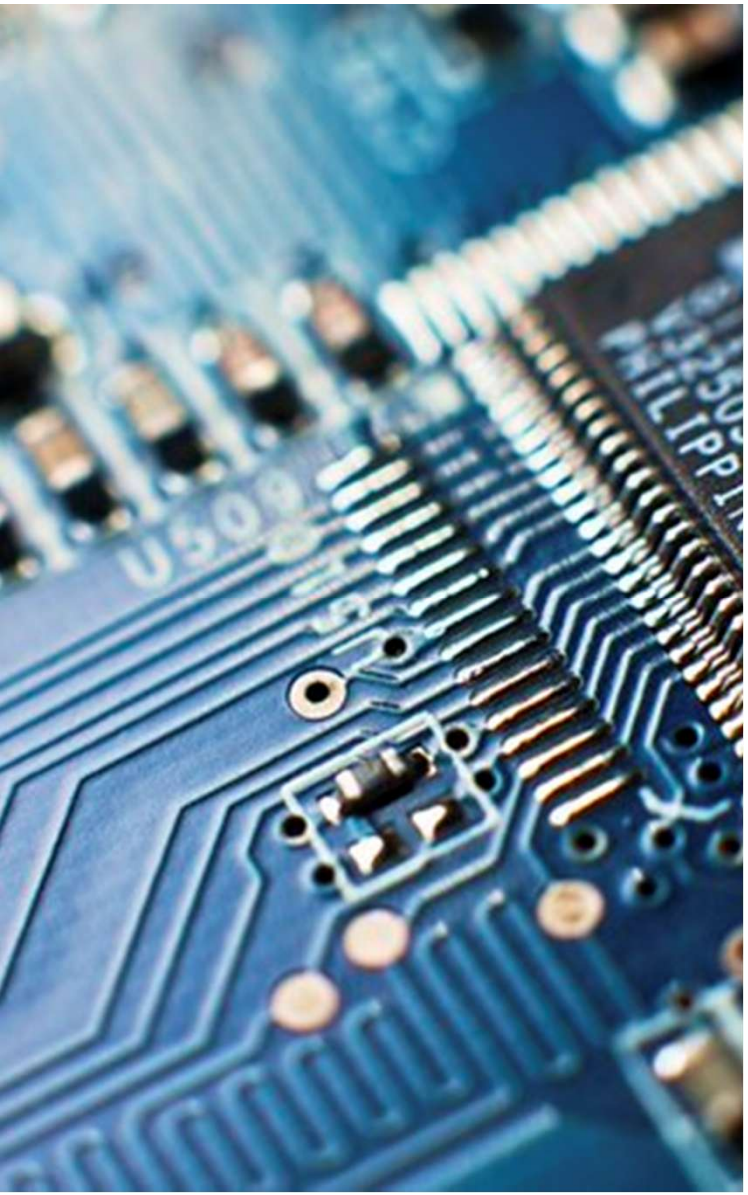
THE TELLTALE PHONE

- A local café/convenience store was burglarized.
- The suspect stole cash, lottery tickets, and other valuable merchandise, and then set a fire to cover their tracks.
- The video system survived the fire and provided the first bit of evidence.
- The primary investigators needed assistance identifying and confirming a suspect.



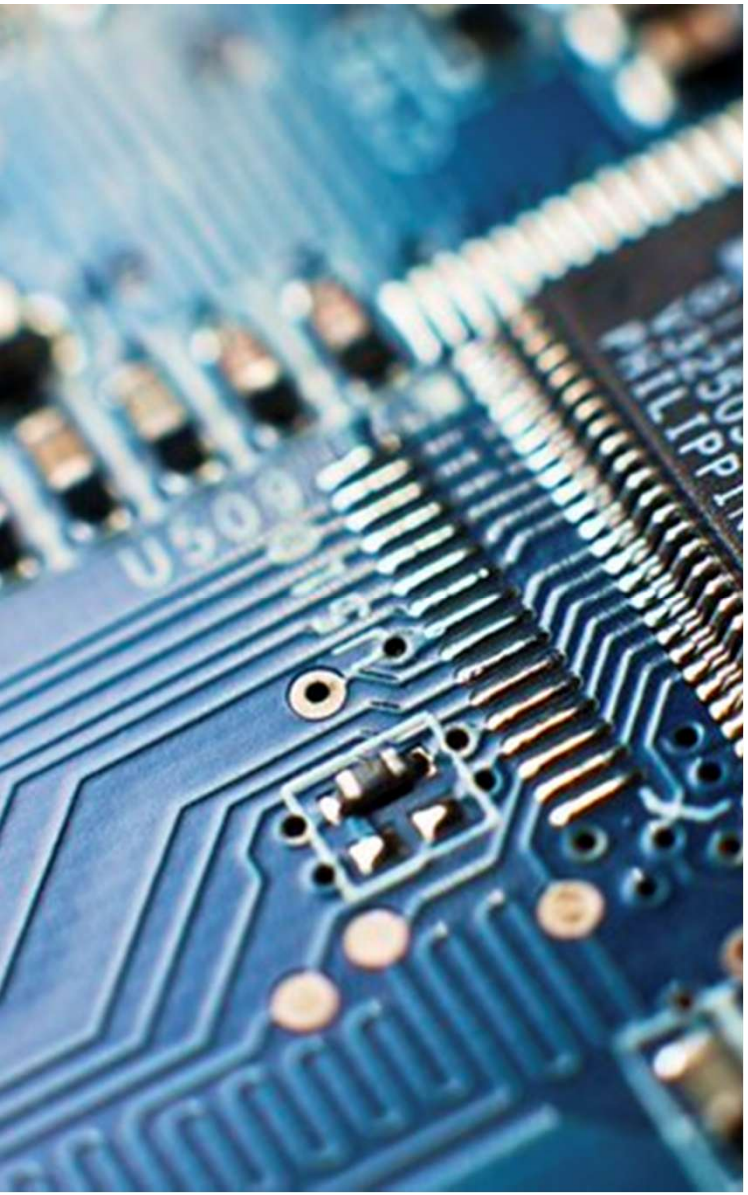
FORENSIC TIDBIT

- Modern Cell Phones contain a *ridiculous* amount of data about us.
- This can include location data, email and internet searches, app use, etc.
- One of the things that your phone captures is a list of networks and devices you connected to.



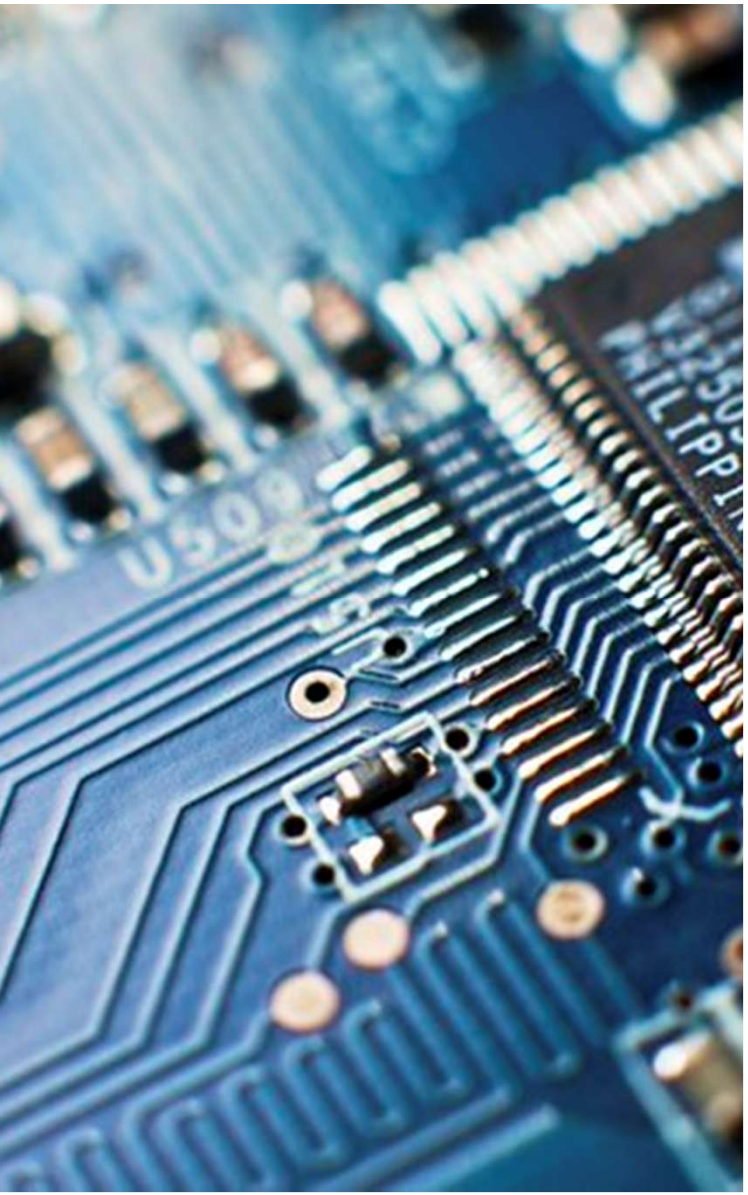
INVESTIGATION QUESTIONS

- Can we tie a potential suspect to the scene at the time of the crime?
- Can we say with certainty it was them?
- Were they alone or with others?



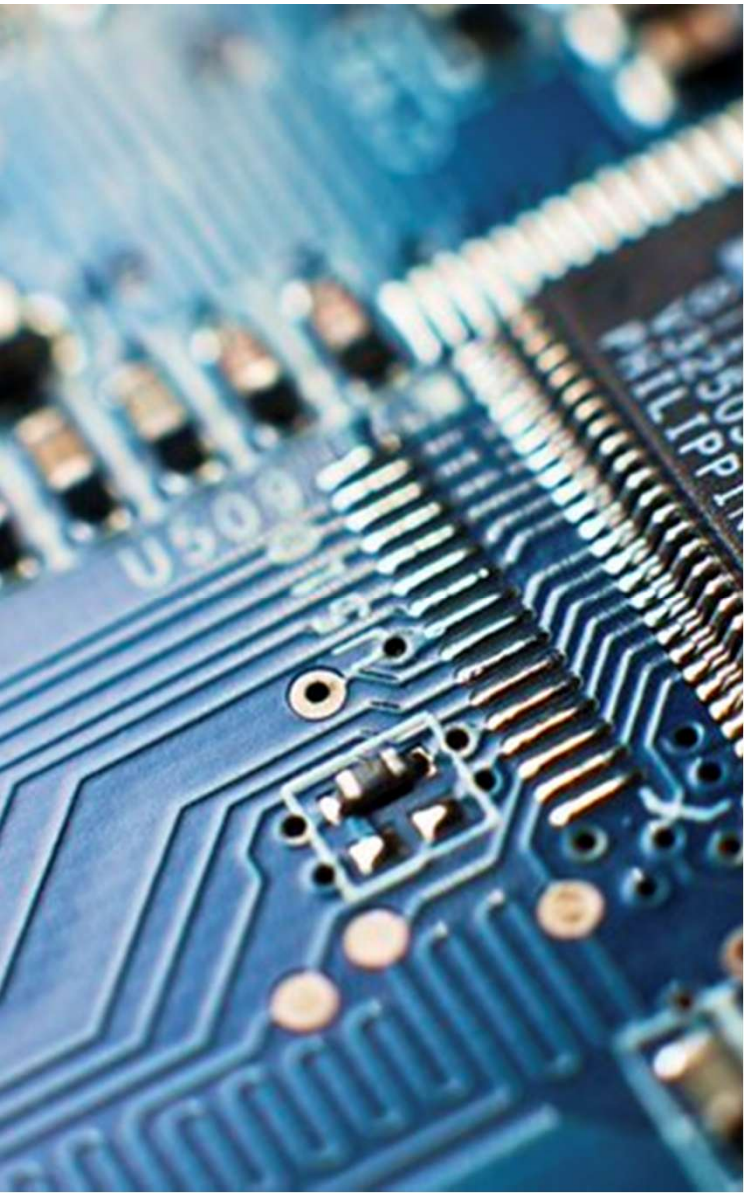
INVESTIGATION RESULTS

- The suspect's phone connected to the wifi less than a minute before the break-in occurred and no other devices connected for several hours on either side of the event.
- This was confirmed first via the wifi router and later by an analysis of the suspect's phone.



AFTERMATH

- Confession and later plea bargain
- Wider training point for all area departments

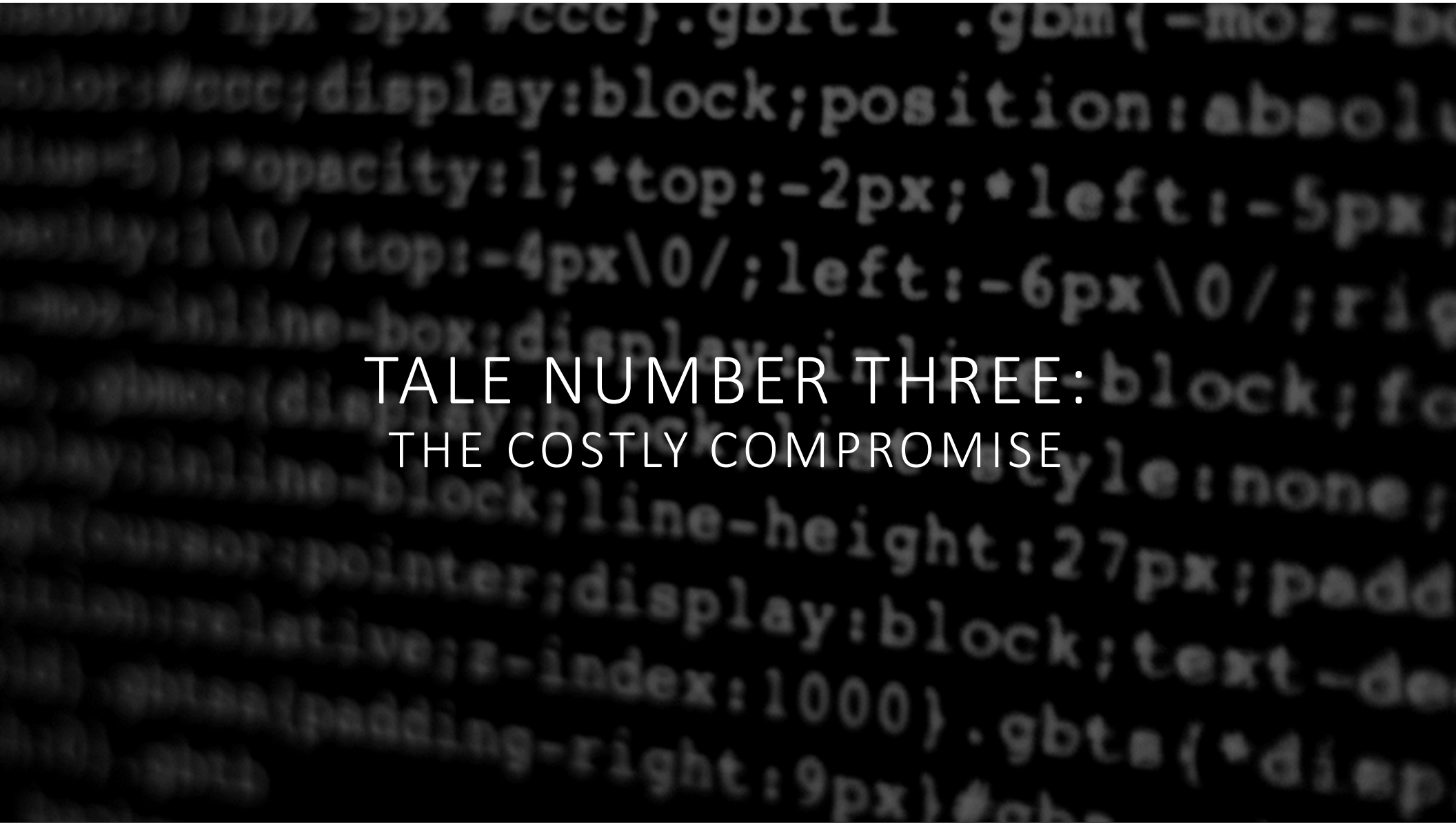


LESSONS LEARNED

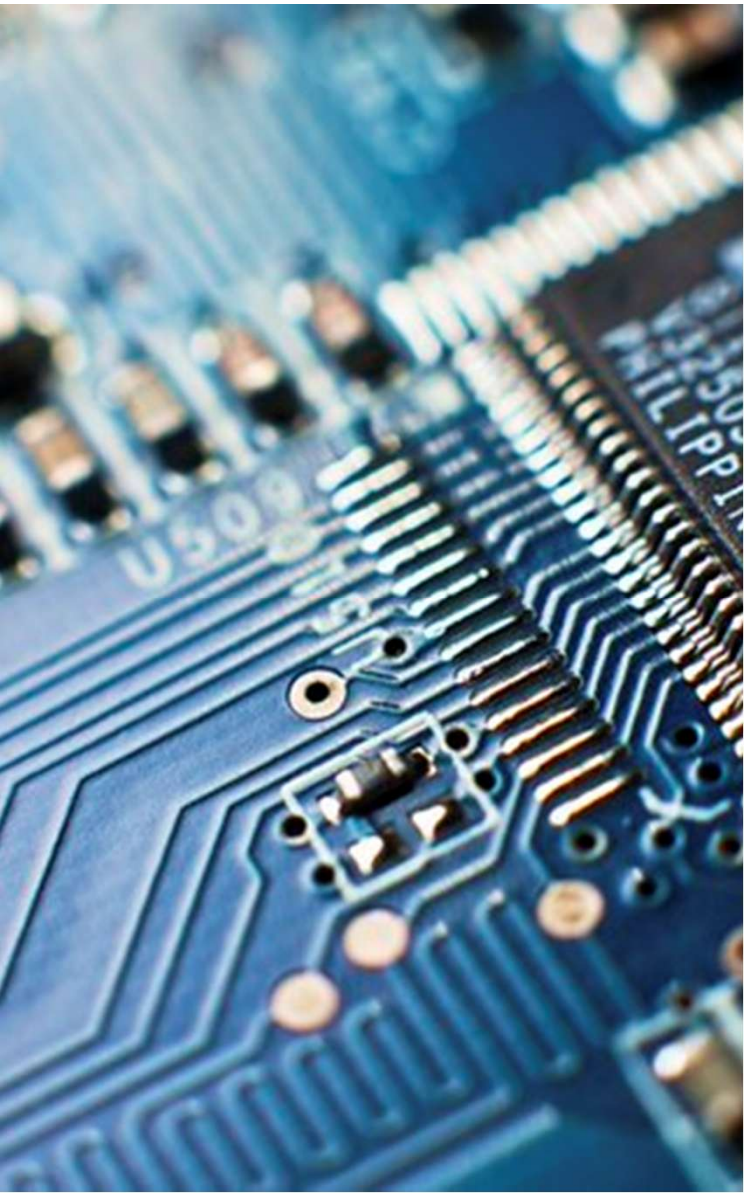
- Fast action is critical
- There are often electronic traces even in incidents that aren't "cybercrimes"
- Cooperation is critical

POLLING QUESTION TWO

HAVE YOU IDENTIFIED POTENTIAL VENDORS FOR FORENSIC SERVICES?

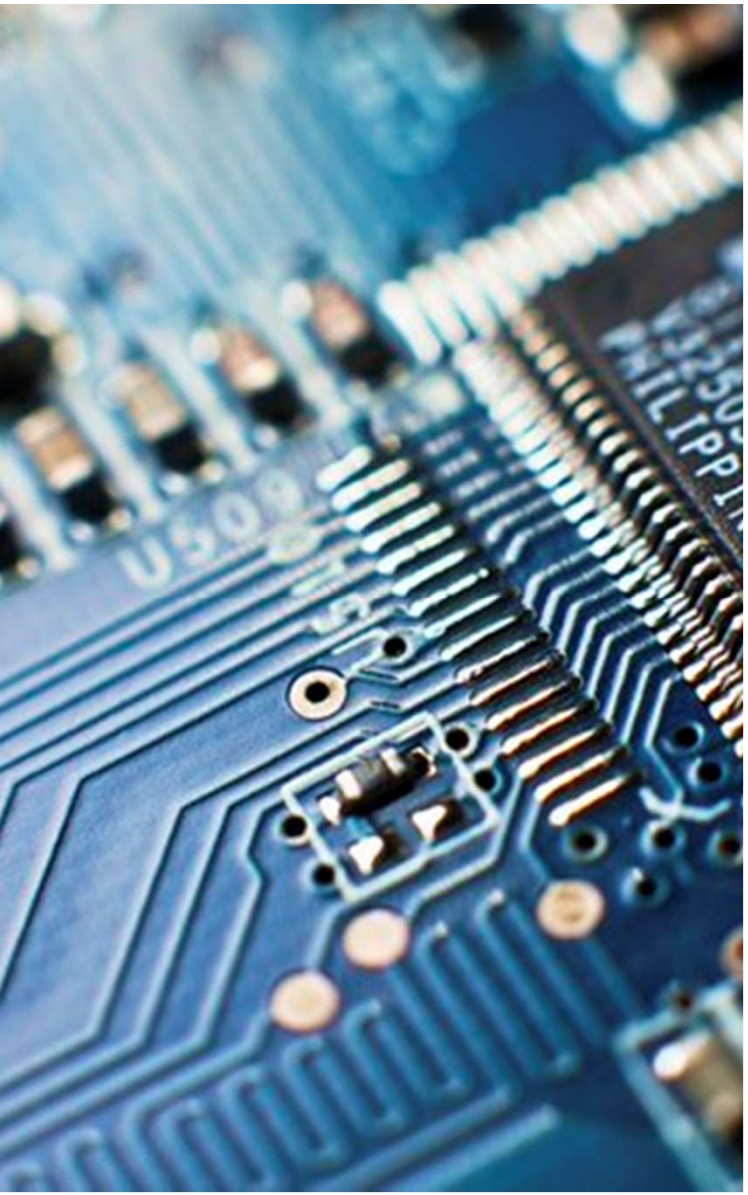


TALE NUMBER THREE:
THE COSTLY COMPROMISE



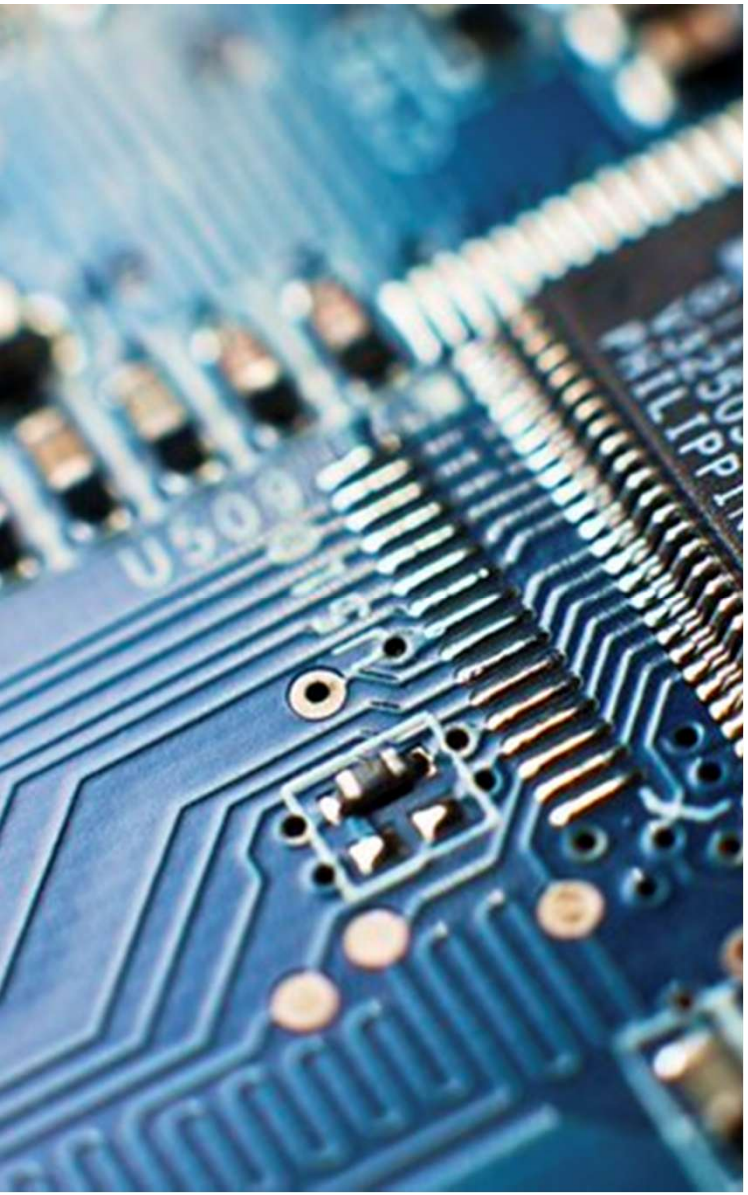
THE COSTLY COMPROMISE

- The Director of Ops of the org gets a social engineering phone call claiming to be the bank
- Caller has deep knowledge of org processes and transactions
- They keep the Director on the phone for more than two hours
- Eventually gain access to financial systems and send $800,000 in wire transfers
- The organization suspected an email compromise had occurred, giving the Threat Actor the information needed to make the social engineering effective
- We were asked to determine if there was evidence of a compromise



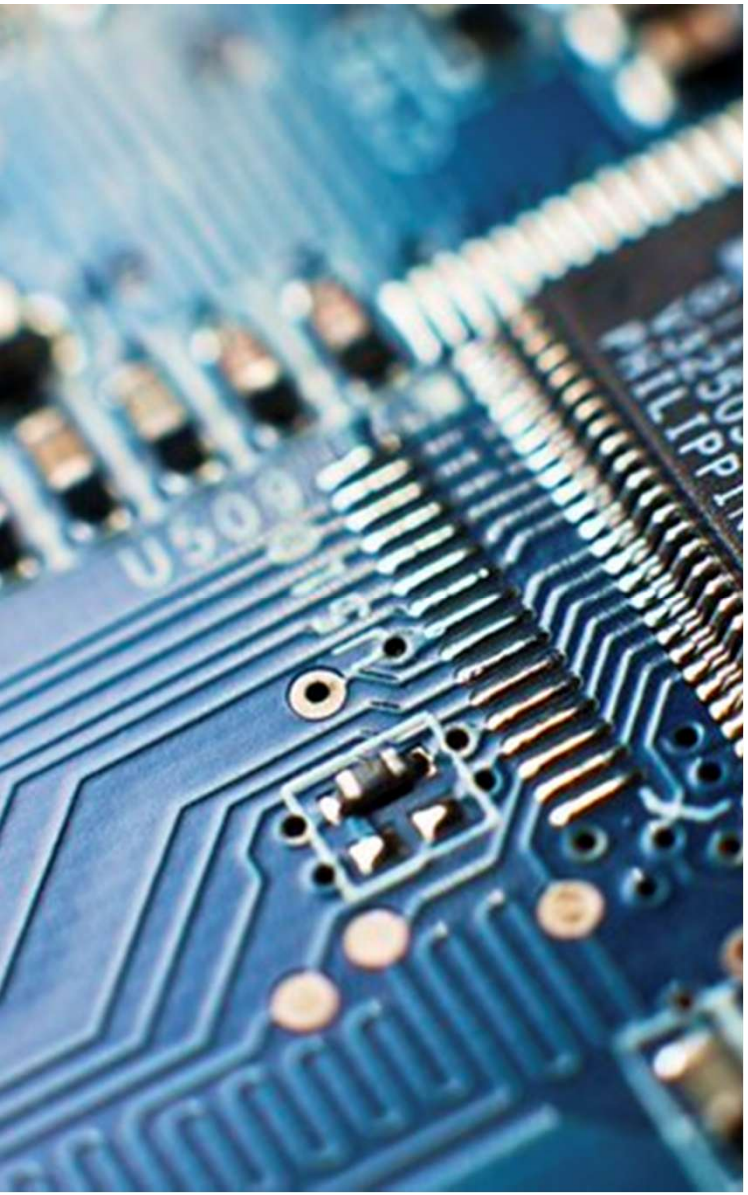
FORENSIC TIDBIT

- The UAL logs IP addresses of many of the activities, allowing for potential geographic placement of the user or actor
- This can allow investigators to determine (in some cases) which account activities are the legitimate user, and which are the Threat Actor.



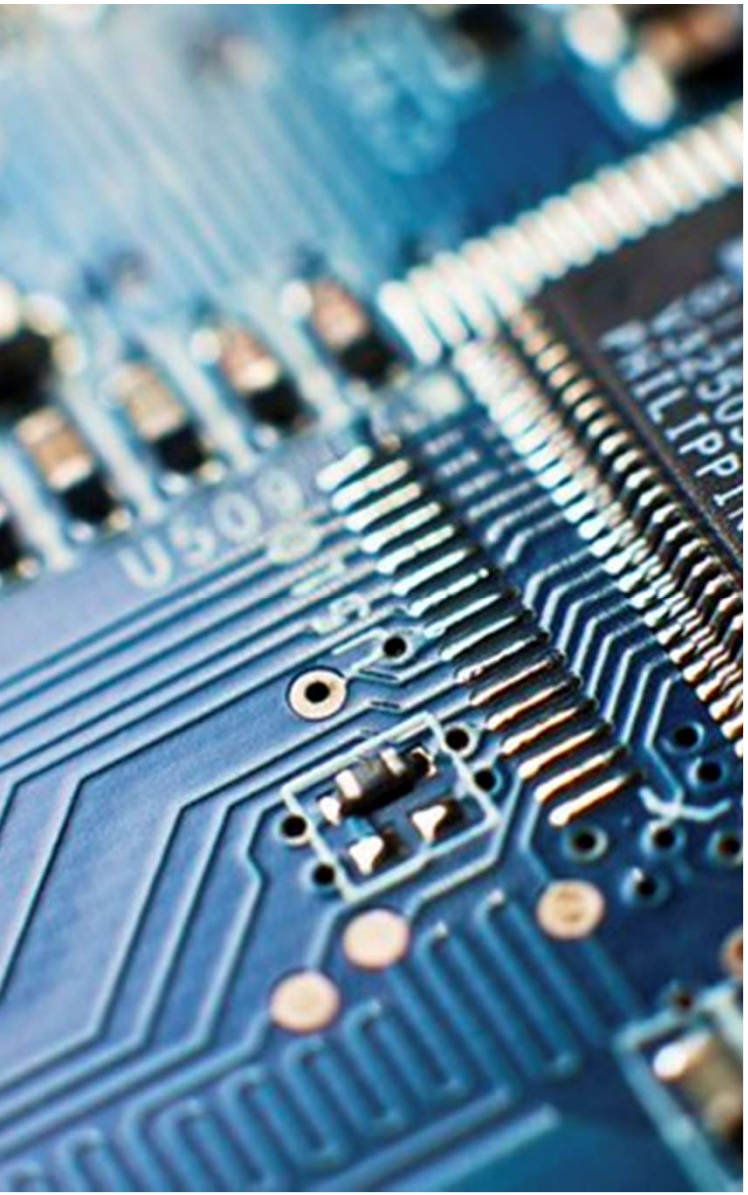
INVESTIGATION QUESTIONS

- Is there evidence of an email compromise?
- Which accounts are affected?
- When did it start?
- How did it happen?
- What did the Threat Actor do while in the system?



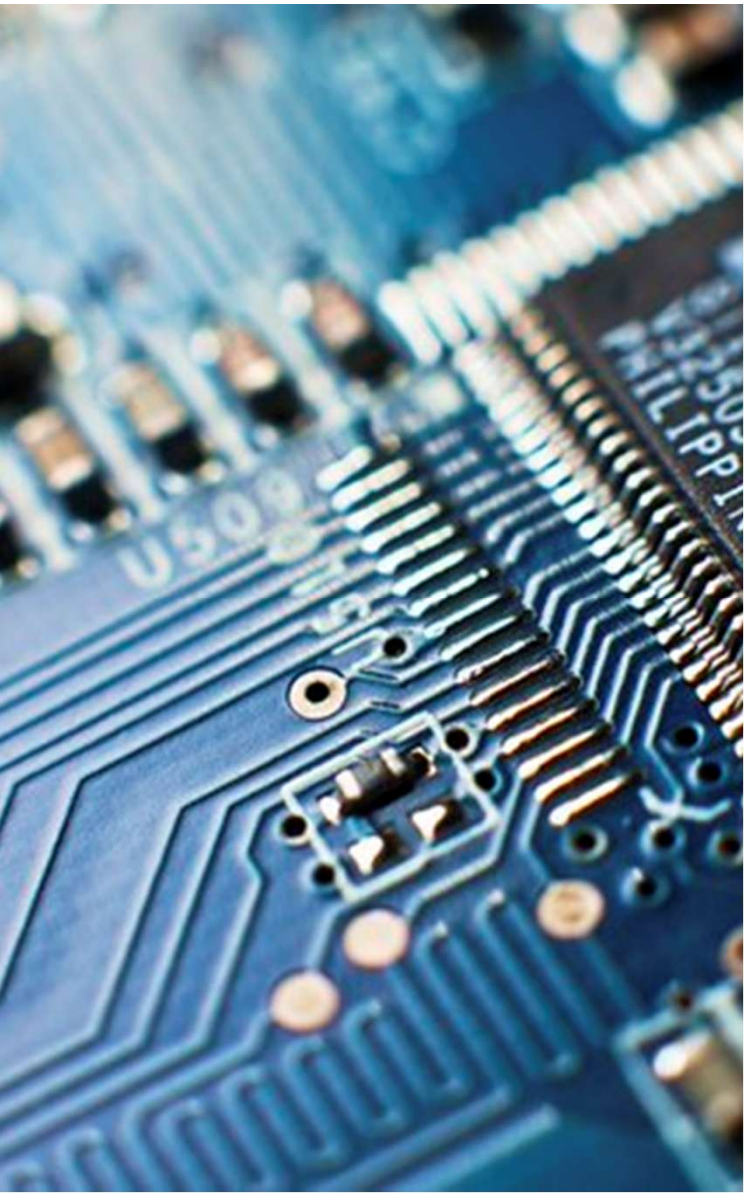
INVESTIGATION RESULTS

- An email account compromise did take place leading up to the attack.
- The original attack occurred outside of the log retention period and we could not discover the initial vector or all TA activity due to the missing logs
- Only one account was affected
- More than 300 individual emails were accessed



AFTERMATH

- Some funds were recovered
- Gaps in the system were sealed
- Training program put into place.

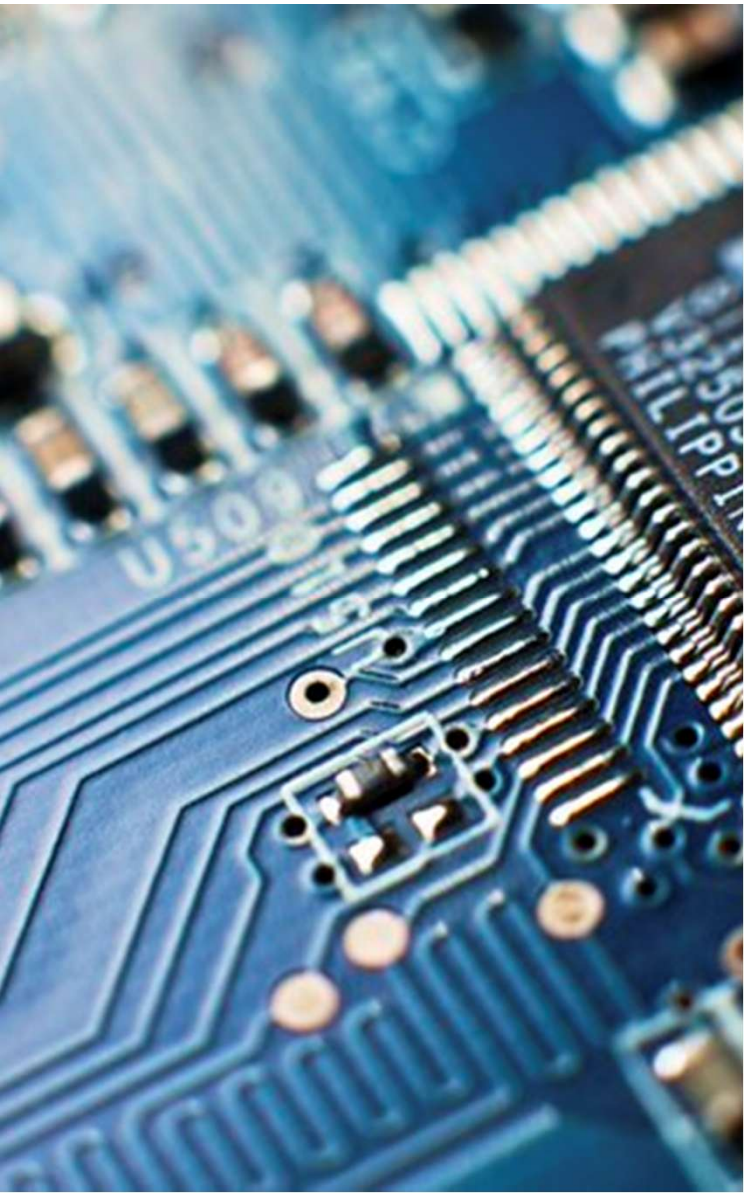


LESSONS LEARNED

- Missing evidence can’t be processed
- Layered defenses are critical
- Detection is as important as prevention
- Don’t ignore internal controls

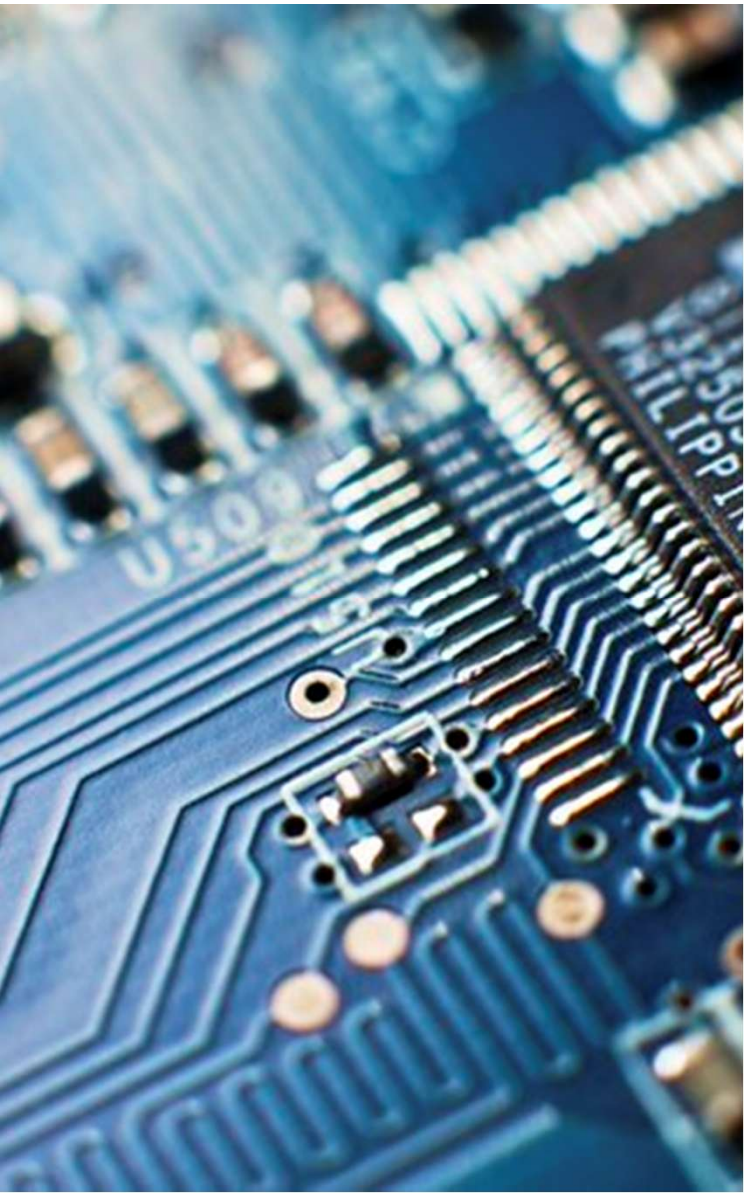
POLLING QUESTION THREE

HAVE YOU REVIEWED YOUR EMAIL SECURITY IN THE LAST YEAR?



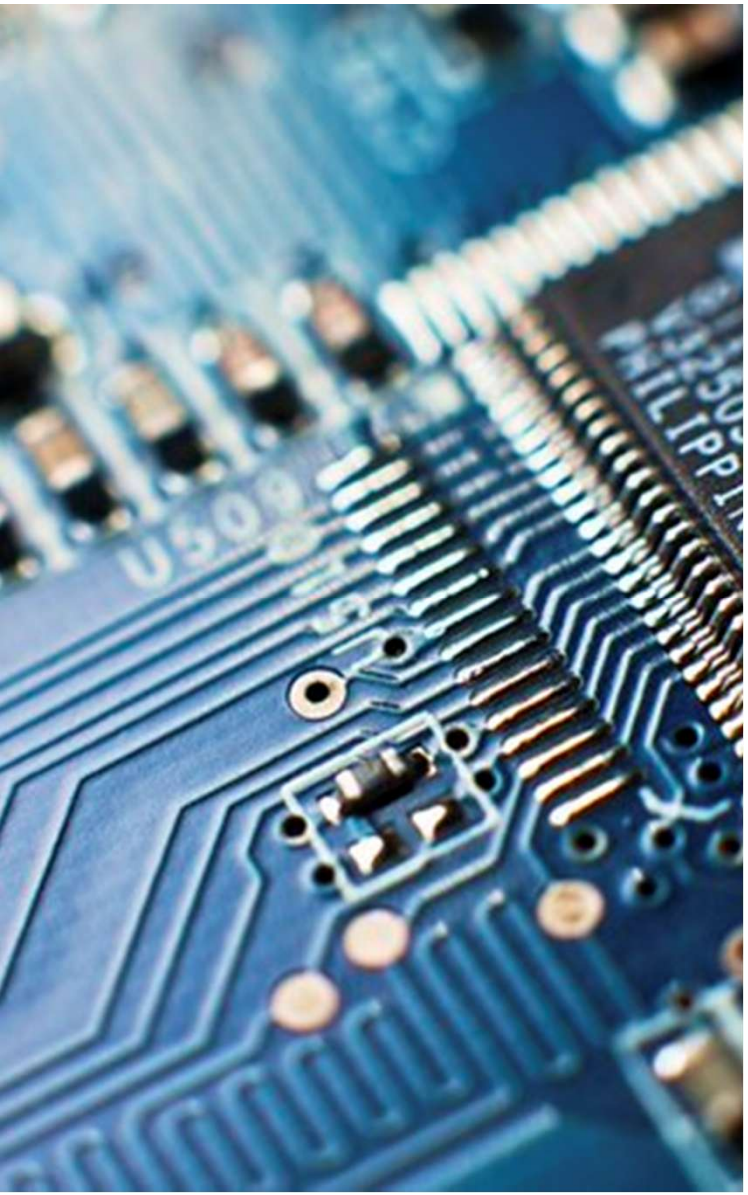
FOUR GOALS OF AN INVESTIGATION

- Preservation
- Containment
- Analysis
- Recovery



DIY OR GET HELP?

- How likely is litigation?
- How serious is it?
- How complicated is it?
- How skilled is our in-house expert?
- How expensive will it be?



BASIC PREVENTION

- Overall cyber review
- User training
- Multi Factor Authentication
- Prevention settings
- Detection settings
- Response preparedness

THANK YOU

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