JTAG and Chip-Off Data Analysis and Testing

NIST

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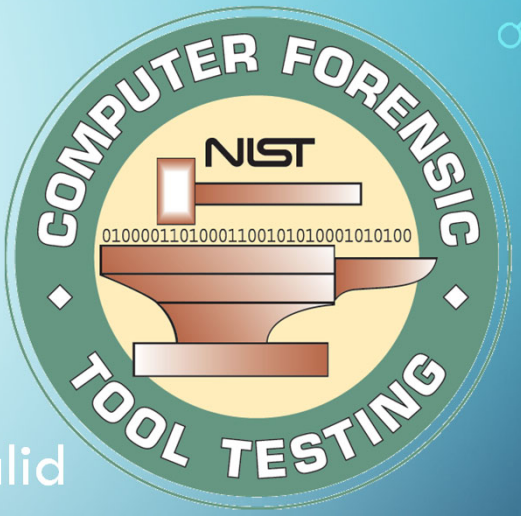
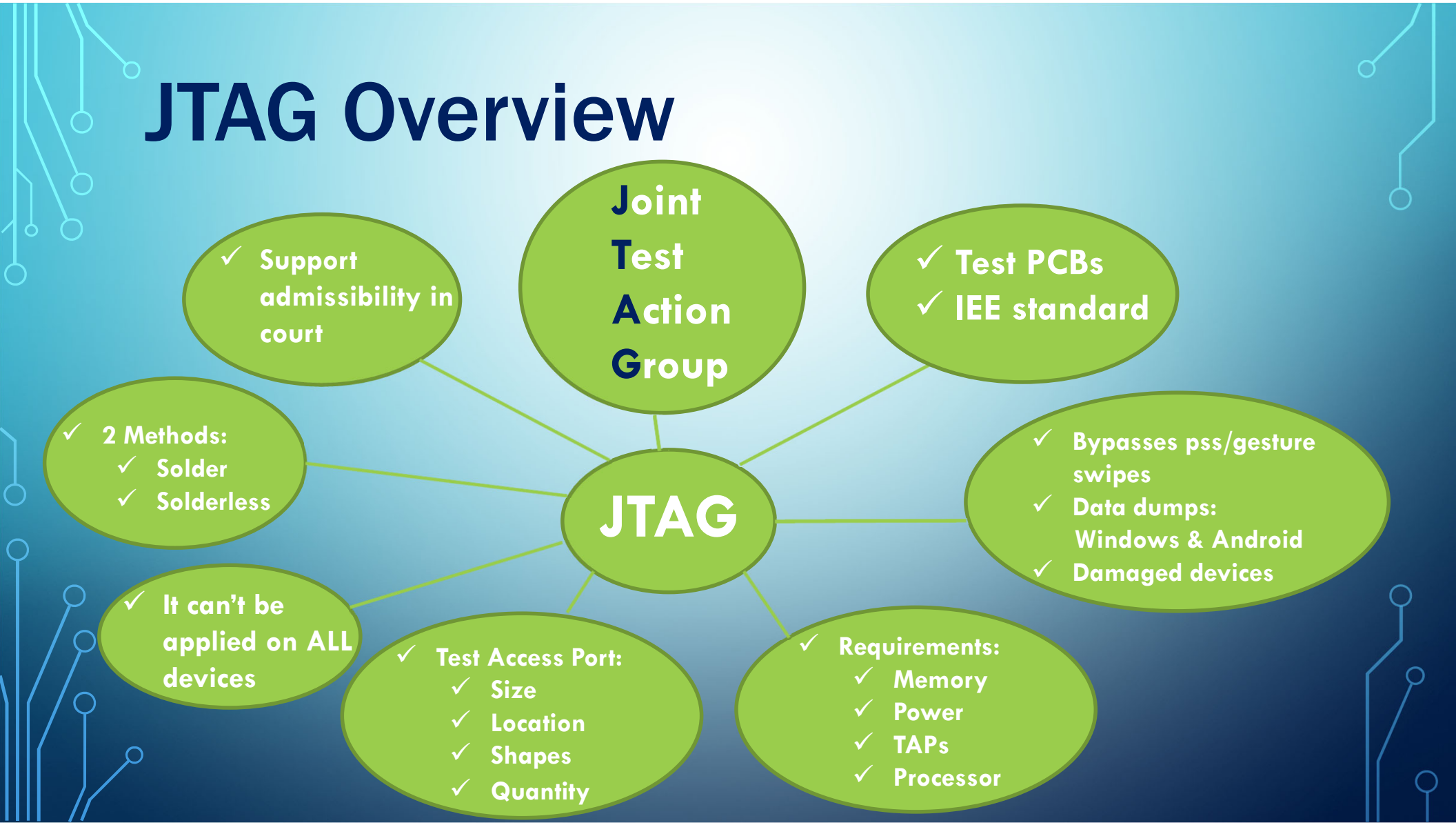
CFTT at NIST

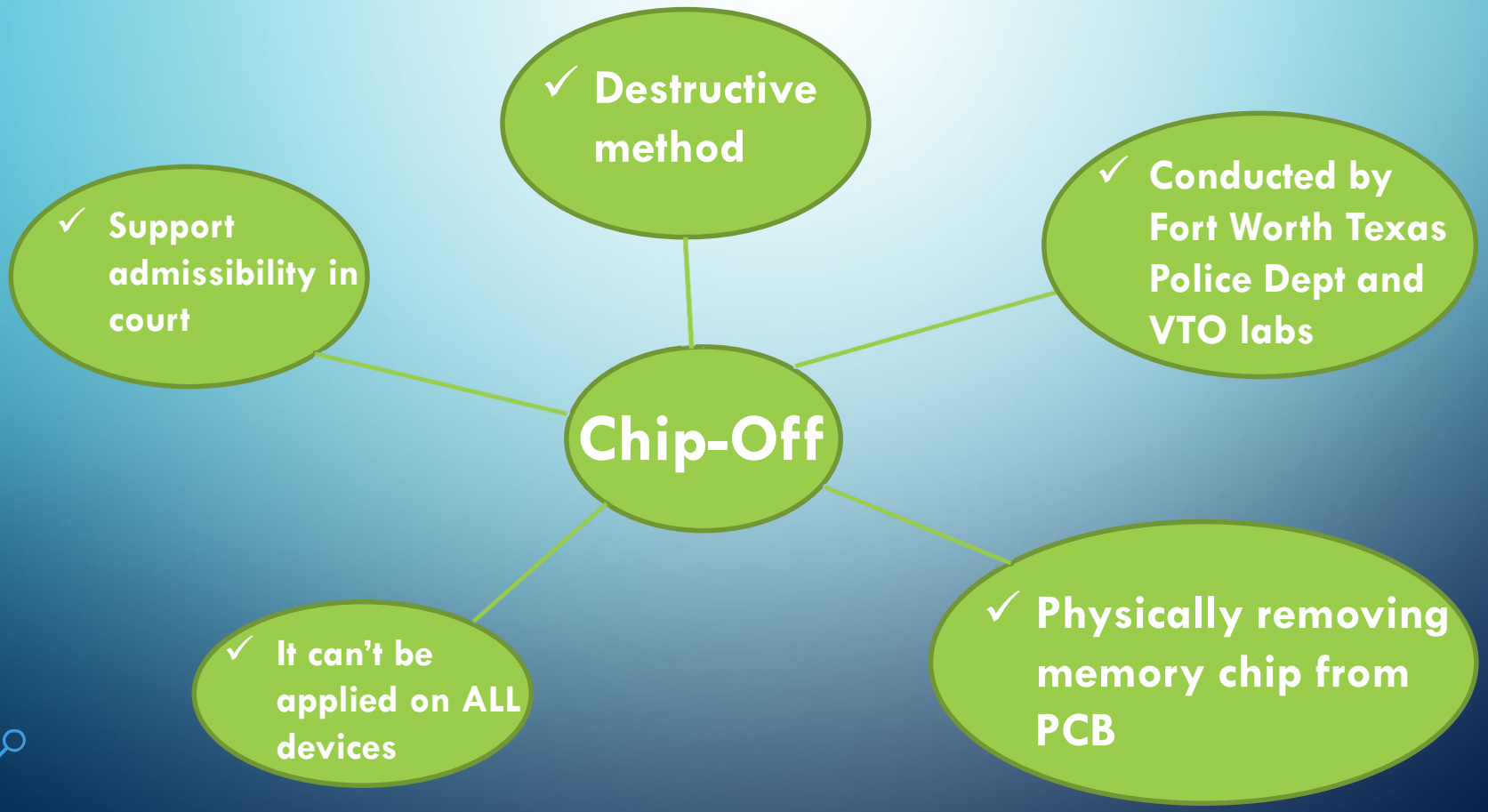


- Provides method of assurance that tools used in computer-related crime investigations produce valid results.
- Benefits:
  - Users make informed choices about acquiring/using computer forensic tools
  - Interested parties – understand the tools capabilities
  - Toolmakers – improve their tools

JTAG Overview



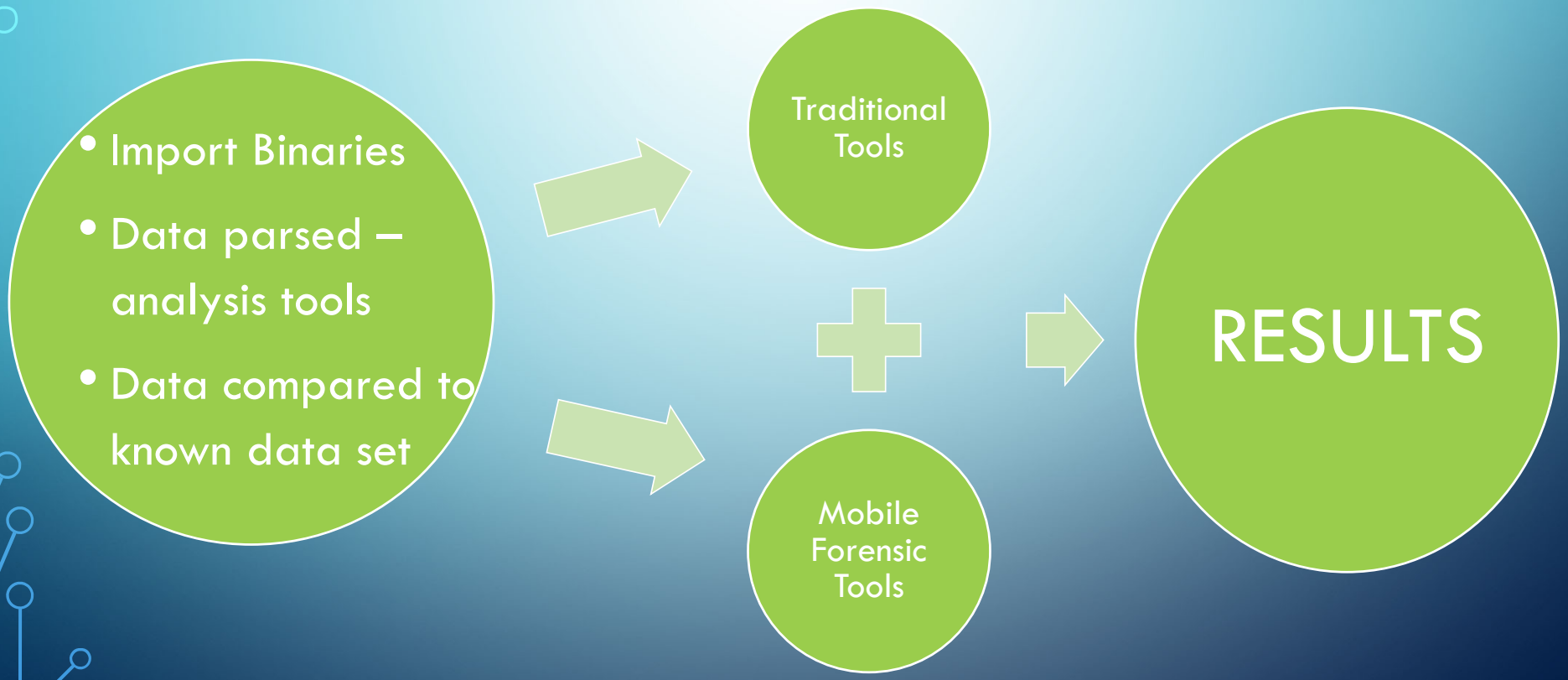
Chip-Off Overview



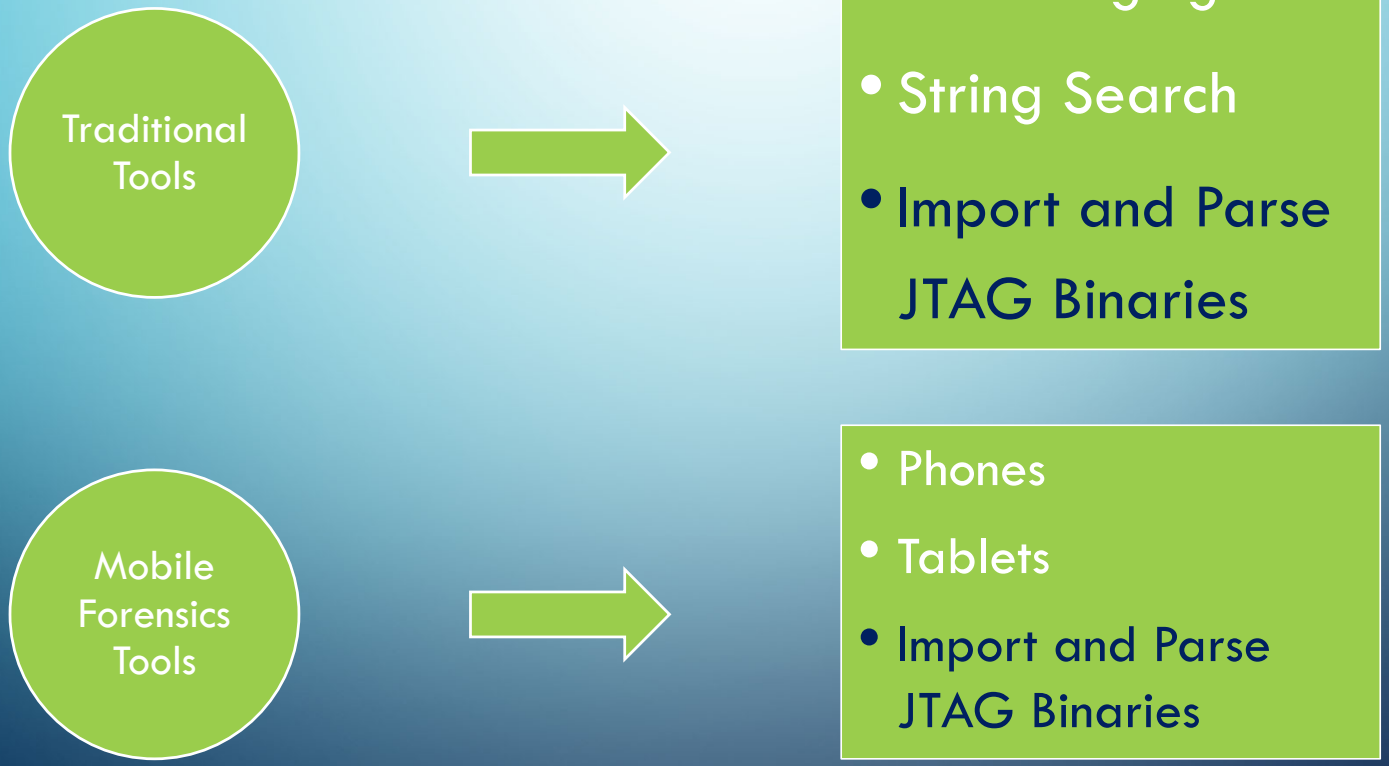
JTAG and Chip-Off side by side

Some Advantages	JTAG	Chip-Off
*Byte-for-byte memory extraction	Yes	Yes
Destructive process	No	Yes
Require specific data cables for each make/model	No	No
Recover PIN-codes, pass-phrases, gesture swipes	Yes	Yes
Bypass phones with locked/disabled USB data ports	Yes	Yes
Data recovery from damaged mobile devices (liquid, thermal, structural)	Yes	Yes

Data Analysis Flow



Analysis Tools



Data Analysis

- 9 tools used
- 10 devices

Results – Analysis Tools

- Differences between analysis tools types?

Differences	Traditional Tools	Mobile Forensics Tools
Presentation of Data	Presents the data in file explorer view format	Presents and categorizes the data better

* User data doesn't change *

Results – JTAG Technique

- Analysis tools anomalies for JTAG:
  - Social Media data:
    - Facebook, Pinterest, SnapChat were partially or not reported – mostly Facebook/most tools
  - Stand-alone files
    - graphic, video, audio not reported for some devices – an analysis tool

Results – JTAG Technique Cont.

- Analysis tools anomalies for JTAG:
  - GPS:
    - Coordinates or address not reported for some devices – some tools

Results – Chip-Off Technique

- Analysis tools anomalies for Chip-Off:
  - Social Media data:
    - Facebook, Pinterest, SnapChat were partially or not reported – mostly Facebook/most tools
  - Stand-alone files
    - graphic, video, audio not reported for some devices – most tools

Results – Chip-Off Technique Cont.

- Analysis tools anomalies for Chip-Off:
  - GPS:
    - coordinates or address not reported for some devices – most tools

Conclusions

- JTAG vs Chip-Off
  - both techniques were consistent across the board
- Analysis Tools Types
  - data presentation varies

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