VIRUS SCANNING WORKFLOWS

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SCIENCE MUSEUM GROUP

GUIDELINES

- **Chatham House Rule**
- iPres 2026 **Code of Conduct**
- Note-taker for any key **agreements/decisions/needs**
- Reporting back to **DPC Digital Forensics SIG**





"Calculex" Circular Slide Rule. 1908. https://collection.sciencemuseumgroup.org.uk/objects/co8405586/calculex-circular-slide-rule

Spiral slide-rule. 1663. https://collection.sciencemuseumgroup.org.uk/objects/co60414/spiral-slide-rule

SCIENCE MUSEUM GROUP

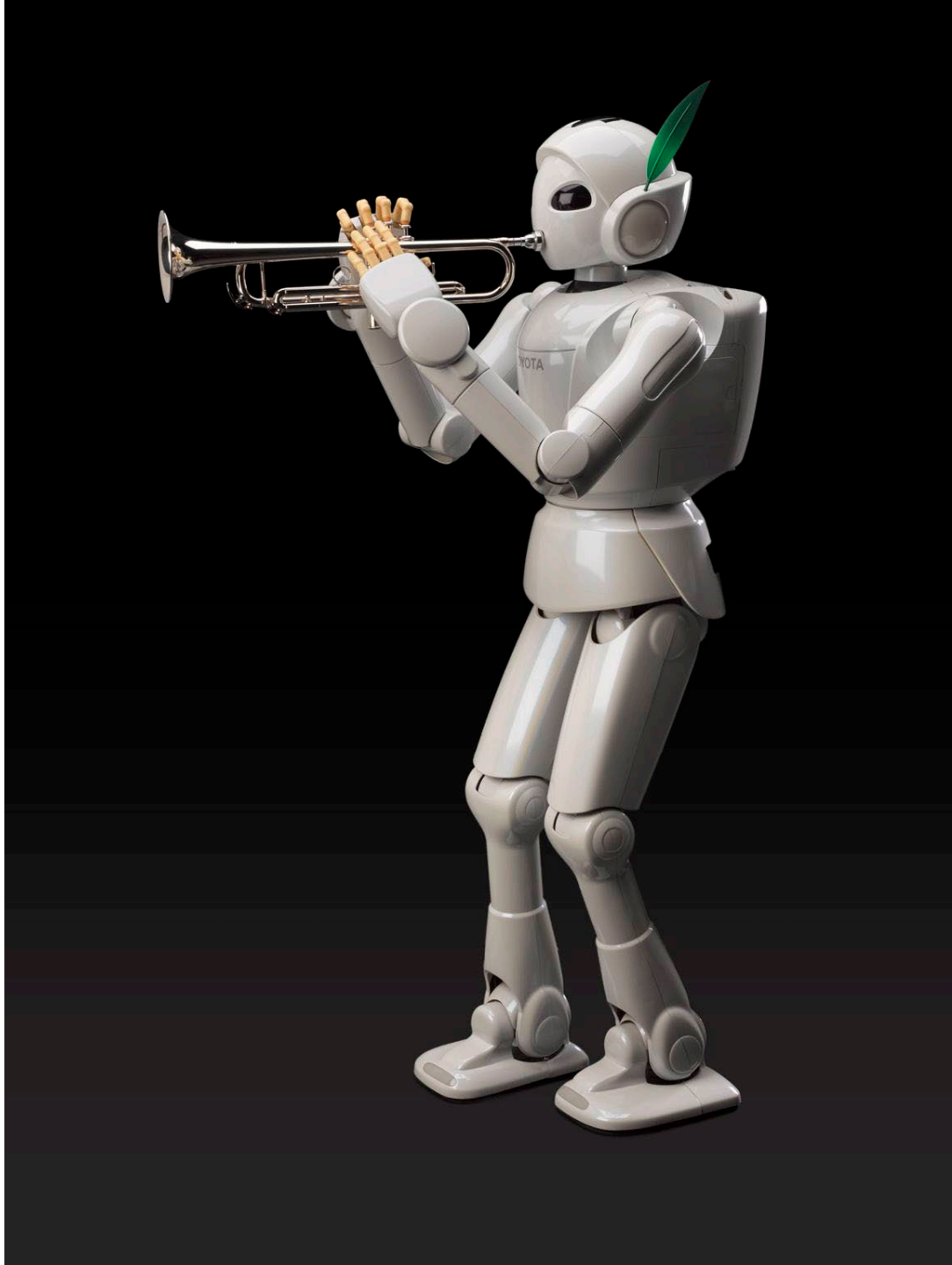
- **5 national museums** across England
- **Science & Innovation Park**
- **90% collections** stored at Science Park
- Over **50,000 digital & audiovisual carriers**
- **106 carrier types** – floppies, tapes, cartridges etc
- **Approx 7TB** Digital Collections
- **Over 100TB** of Digital Corporate Records
- **Additional ~375TB on carriers** (digital & audiovisual) – Collections & Corporate Records



Science Museum Group
https://www.sciencemuseumgroup.org.uk/

WHY AM I HERE?

- **Update assumptions and practices** around virus scanning
- **Discuss risk profiles** & learn about new types of malware risks
- **40 known different types of digital carriers** dating back to **1980s**
- **Need to obtain reports** from Virus Scanning software
- **No elevated user privileges**; prevents colleagues in other teams from disk imaging (on Virus Scanning Machines)



Trumpet Player Partner Robot, with multiple additional parts. 2004-2005. https://collection.sciencemuseumgroup.org.uk/objects/co8461252/trumpet-player-partner-robot-with-multiple-additional-parts

WHY ARE YOU HERE?

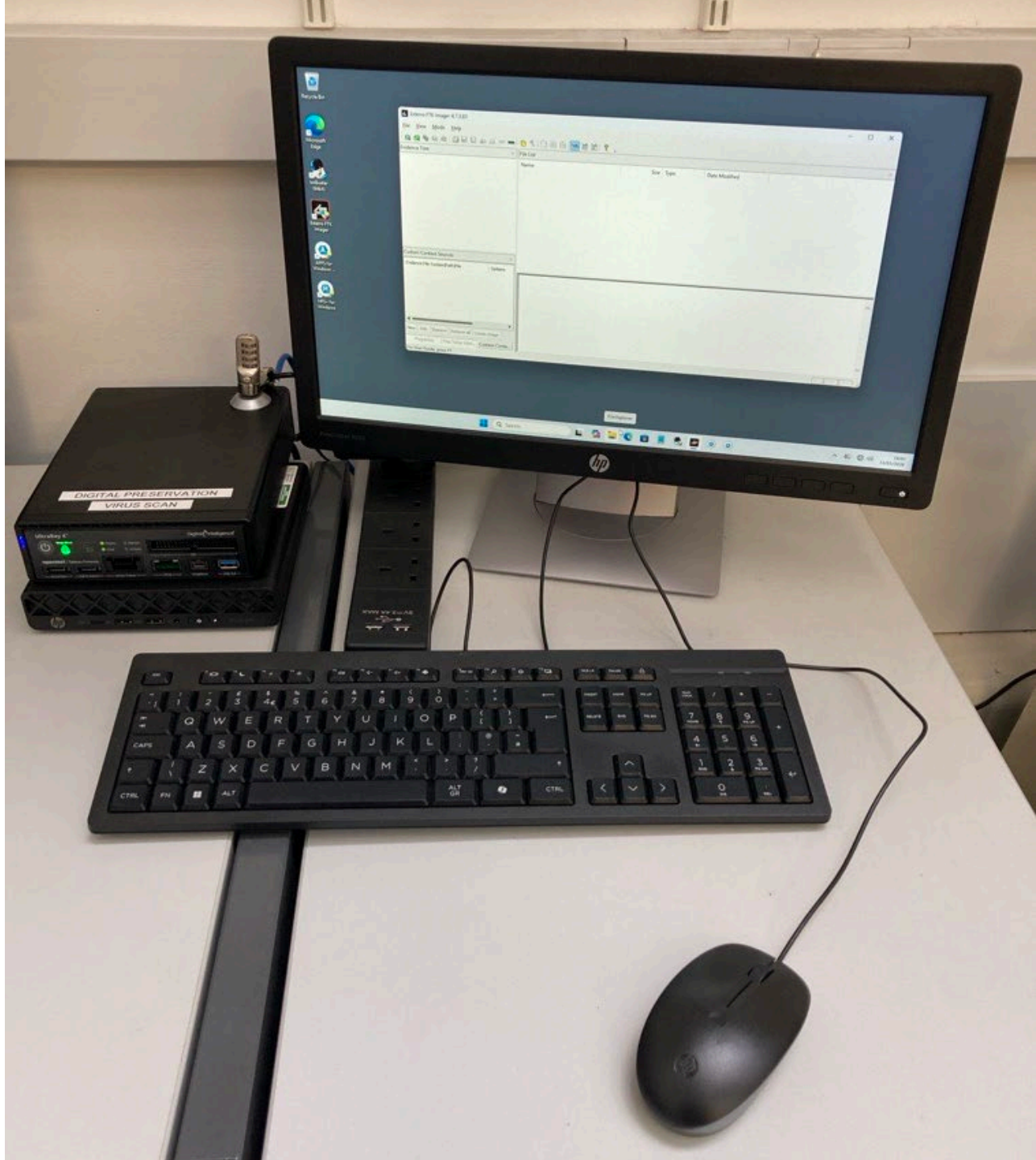
- **Introduce yourself** to the group/your neighbour
- **What do you want** to get out of this session?
- **What virus scanning workflow(s)** do you have in place?



Replica of 'Maria' Robot from Fritz Lang's 1927 Film: ‘Metropolis’. 2016. https://collection.sciencemuseumgroup.org.uk/objects/co8564807/replica-of-maria-robot-from-fritz-langs-1927-film-metropolis

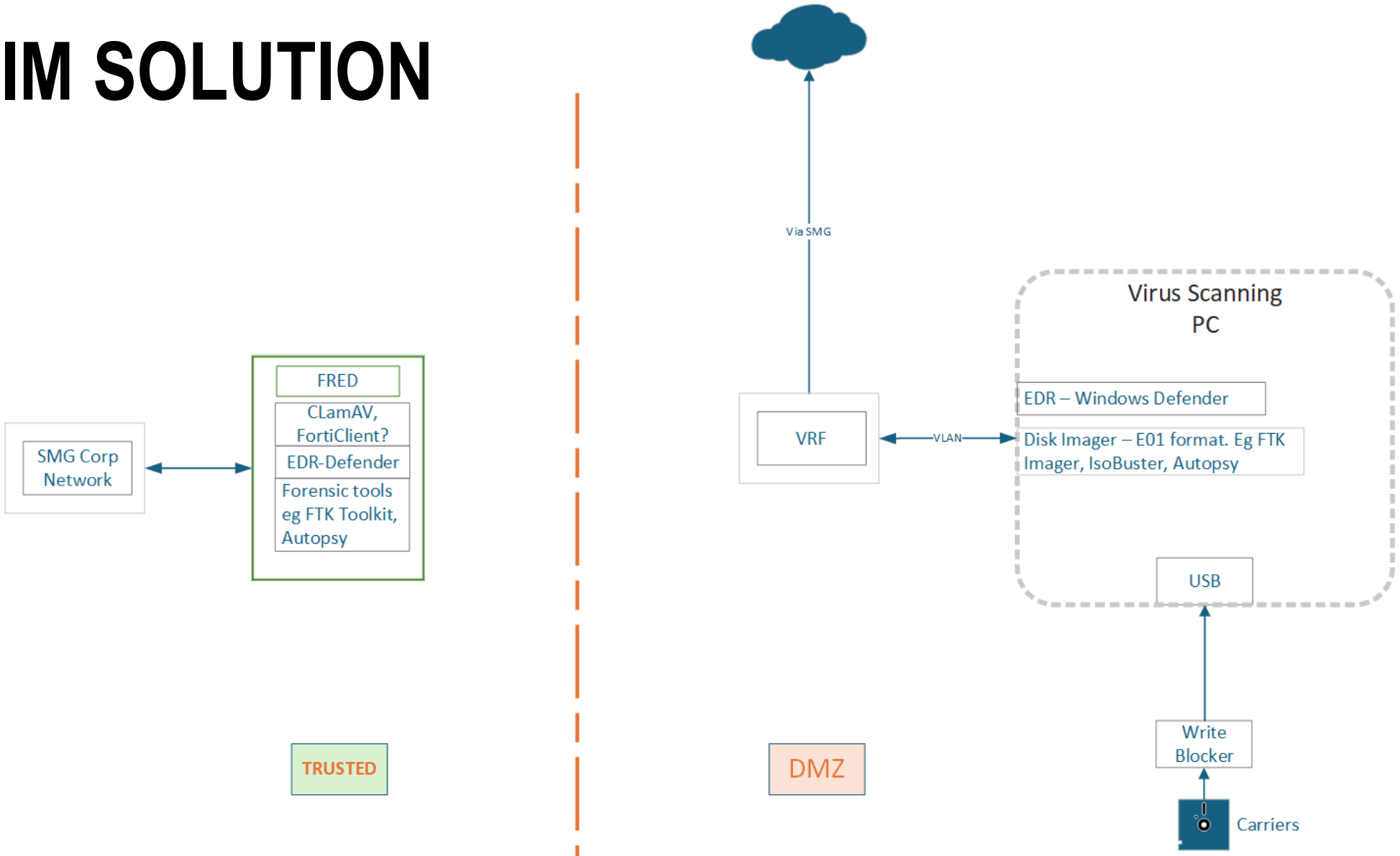
VIRUS SCANNING AT SMG

- Implemented an **interim virus scanning workflow process**
- **Airgapped from network**; connected to public wifi only
- **Small form factor** Windows PC (HP ProDesk 4 G1i Mini)
- **Write-blocker** (Ultrabay 4 Portable)
- **Windows Defender**
- **Shuttle drive** for moving scan reports
- **Relies on SMG colleagues** following procedure



Virus Scanning Machine, Science Museum, London. 2026.

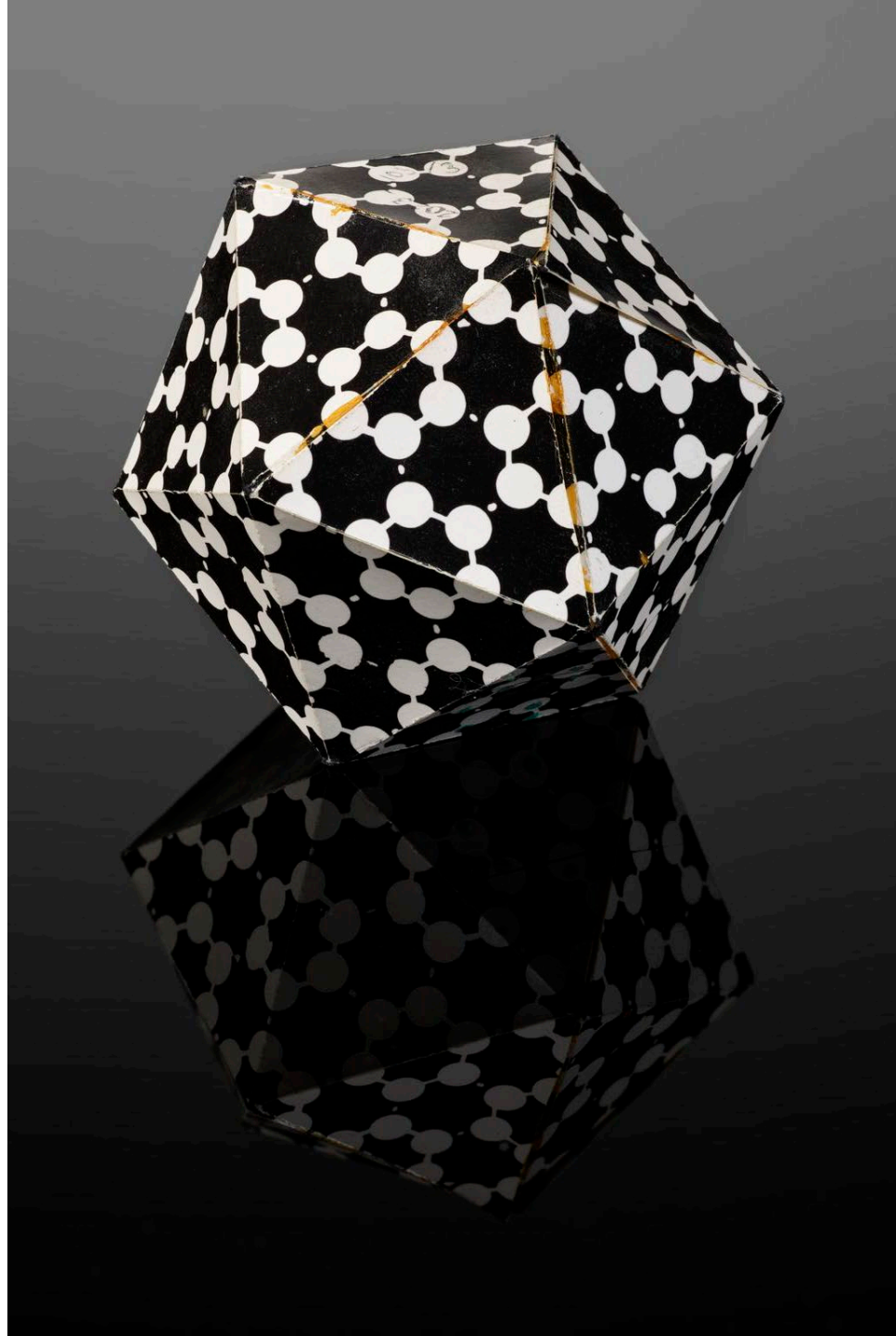
INTERIM SOLUTION



Virus Scanning Interim Workflow Design, Science Museum Group. 2025.

SOFTWARE & TOOLS

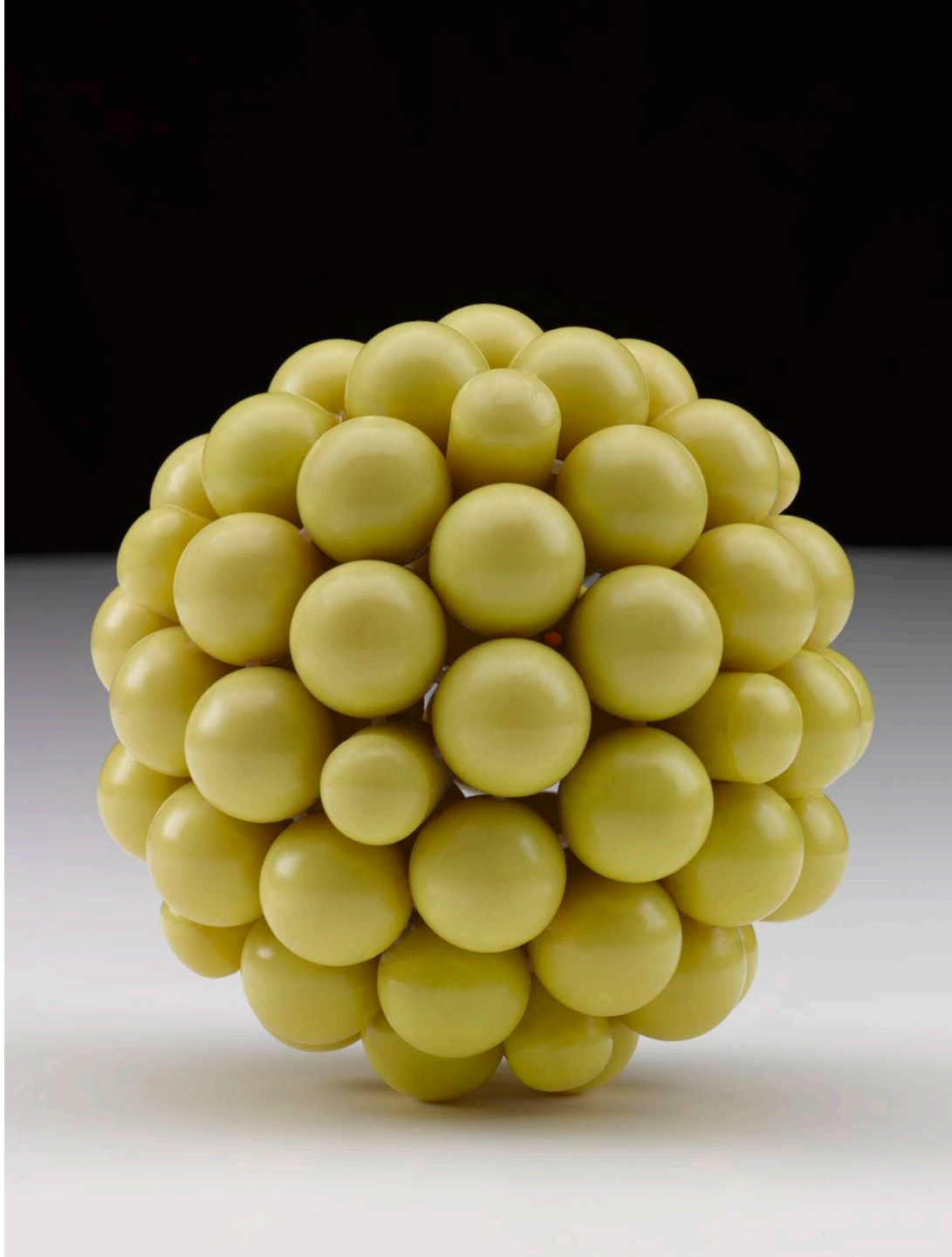
- **Virus Scanning Software**
  - **ClamAV** (used in Digital Preservation Systems)
  - **Malwarebytes**
  - **McAfee**
  - **Sophos**
  - **Windows Defender** (built into Windows OS)
- **Cybersecurity tools**
  - **Crowdstrike**
  - **Forticlient**



Icosahedron virus particle model made by Dr. June Almeida. 1960-1990. https://collection.sciencemuseumgroup.org.uk/objects/co8930691/icosahedron-virus-particle-model-made-by-dr-june-almeida

APPROACHES

- **Standalone non-networked computer** (virus scanning & processing files)
- **Sneakernet** (move files across airgap)
- **Standalone computer** (connected to public wifi)
- **Browser-based file ingest** directly into Digital Preservation System (running virus scanner)
- **Walled Garden** approach
- **Forensic bridges** but connected to network



Ball and spoke model of human wart virus (yellow) made at the Laboratory of Molecular Biology
https://collection.sciencemuseumgroup.org.uk/objects/co146258/ball-and-spoke-model-of-human-wart-virus-yellow-made-at-the-laboratory-of-molecular-biology

EXISTING SOLUTIONS

- Walled garden (with/without sneakernet)
- Virtual walled garden
- Separated VLAN / own network subnet
- Virtualised environment / sandboxed environment
- Multiple virus scanner tools
- Networked workstation, with firewall and multiple cybersecurity tools (universities)
- Endpoint encryption



Glass vial from the first doses of the Oxford-AstraZeneca COVID-19 vaccine used in the UK rollout, 4th Jan 2021. 2020. https://collection.sciencemuseumgroup.org.uk/objects/co8783148/glass-vial-from-the-first-doses-of-the-oxford-astrazeneca-covid-19-vaccine-used-in-the-uk-rollout-4th-jan-2021

SHARING YOUR SCENARIO

- **What approach** is your organisation using?
- **What Virus Scanning software(s)** is your organisation using?
- **What Cybersecurity/Endpoint Detection Response (EDR) software** is your organisation using (and are you even allowed to know)?

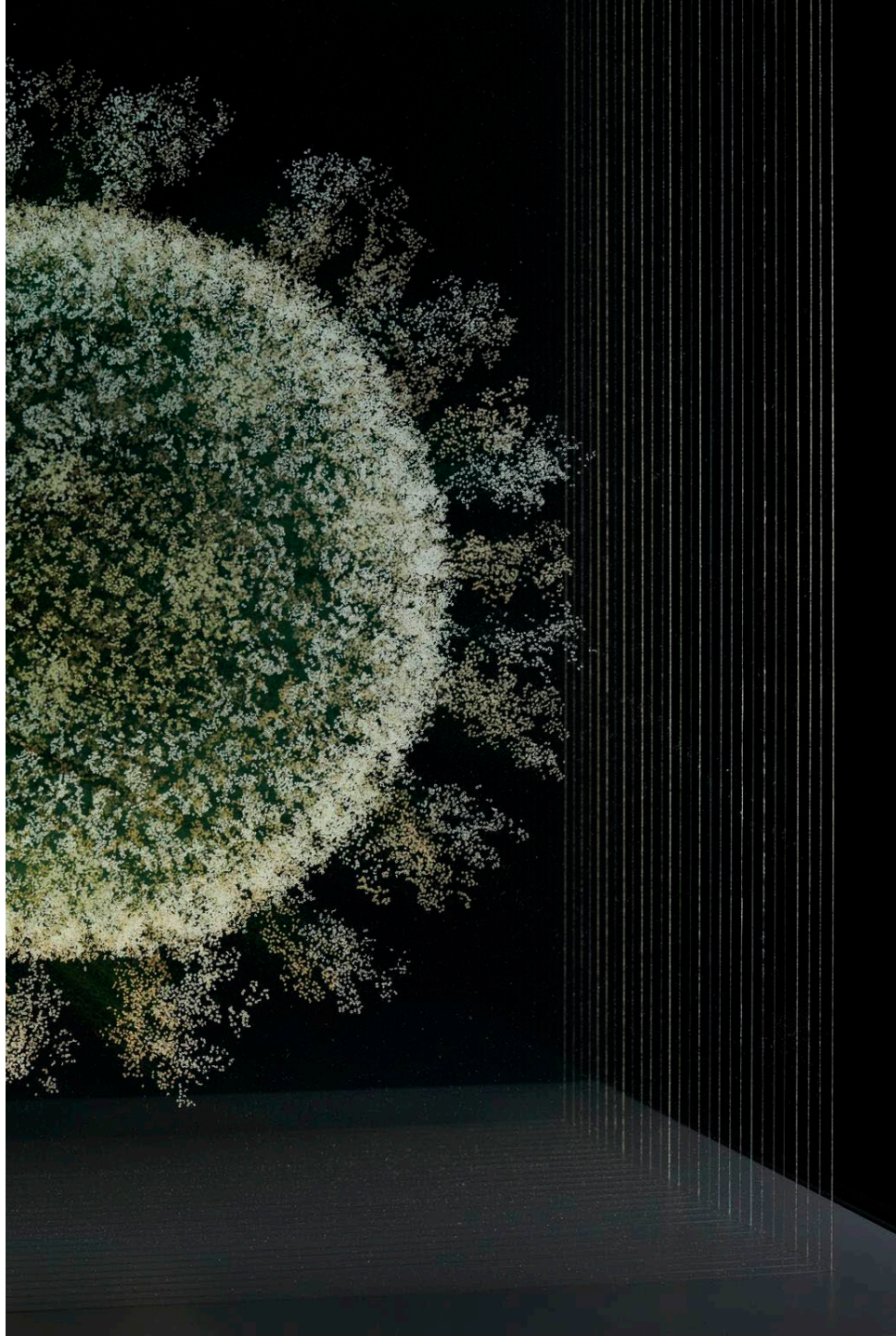


Commemoration of the Moderna COVID-19 Vaccine. 2020. https://collection.sciencemuseumgroup.org.uk/objects/co8795995/commemoration-of-the-moderna-covid-19-vaccine

DISCUSSION: PART 1

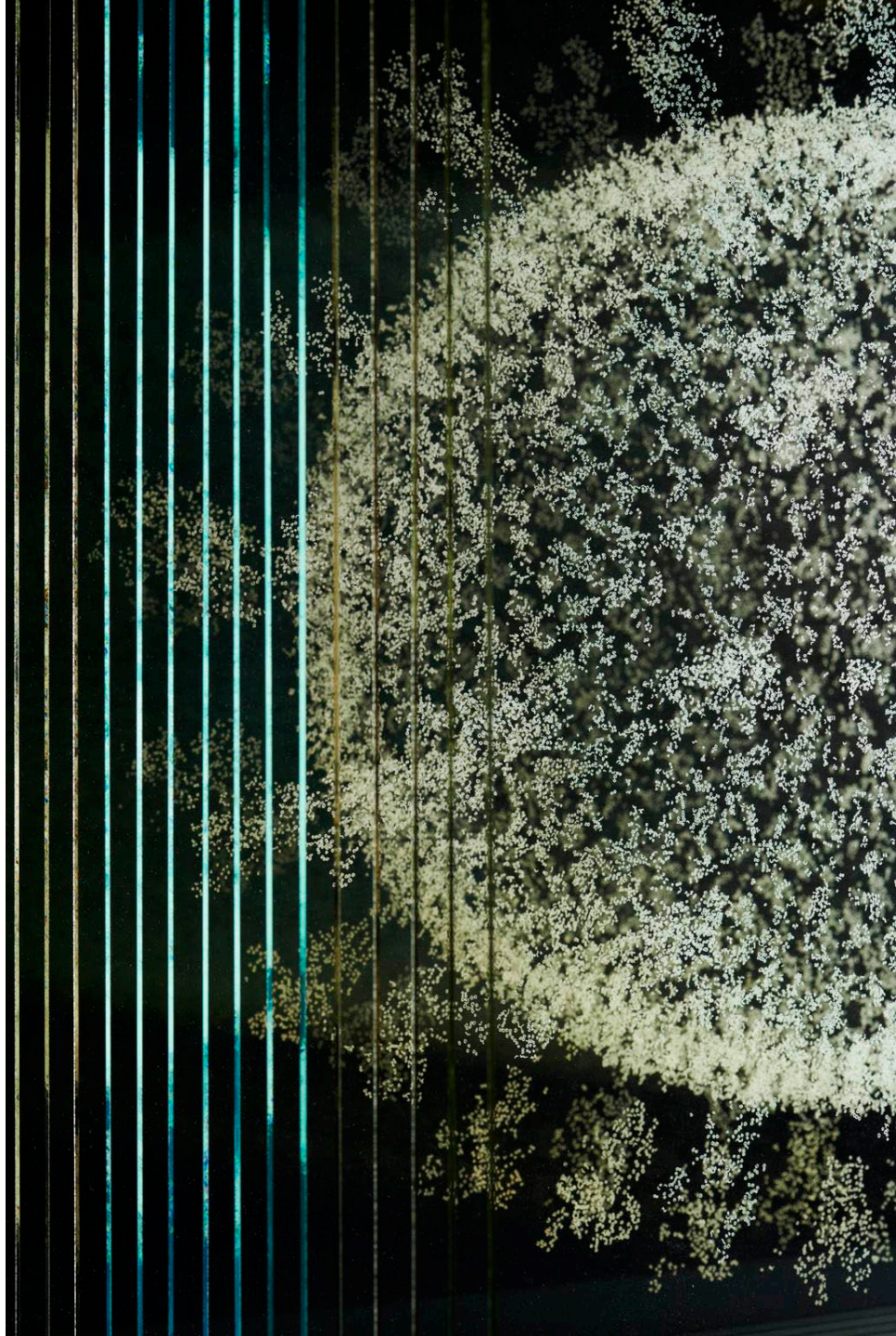
- **What are our needs** for Virus Scanning in 2026?
- Should we still be **quarantining for 30 days?**
- Do we need to be running **more than one virus scanner?**
- Are there any scenarios where **running multiple virus scanners might cause issues?**
- How does virus scanning **compliment** other organisational cybersecurity **malware detection/Endpoint Detection Response (EDR)?**

'2020: the Sphere that Changed the World' sculpture of Coronavirus by Angela Palmer. 2020. https://collection.sciencemuseumgroup.org.uk/objects/co8791203/2020-the-sphere-that-changed-the-world-sculpture-of-coronavirus-by-angela-palmer



DISCUSSION: PART 2

- Do we need **different workflows for different types of risk**, or a **single workflow for everything?**
- How do we determine **different risk profiles?**
- What should we do when we **find a ‘low-risk’ virus?**
- Should we be **leaving some viruses as is** (rather than sanitising them)?
- How do we handle **other cybersecurity concerns** (eg phishing)?



'2020: the Sphere that Changed the World' sculpture of Coronavirus by Angela Palmer. 2020. https://collection.sciencemuseumgroup.org.uk/objects/co8791203/2020-the-sphere-that-changed-the-world-sculpture-of-coronavirus-by-angela-palmer

DISCUSSION: PART 3

- If digital content (eg email attachment) has already passed through a virus scanner, **does it need to be scanned again** before ingest?
- Should we be **re-running virus scans** at any point in the future (like we do for checksum verification)?
- Do we need to **scan at other points in the workflow** (ie before providing public access)?



'2020: the Sphere that Changed the World' sculpture of Coronavirus by Angela Palmer. 2020. https://collection.sciencemuseumgroup.org.uk/objects/co8791203/2020-the-sphere-that-changed-the-world-sculpture-of-coronavirus-by-angela-palmer

DISCUSSION: PART 4

- What does an **ideal virus scanning workflow** look like?
- How can we **collect viruses** so Digital Preservation Systems don’t reject them?
- **Anything else?**



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RESOURCES

- Digital Preservation Coalition. 2022. Core requirements for a digital preservation system. https://www.dpconline.org/digipres/implement-digipres/procurement-toolkit/procurement-toolkit-core-requirements

- Farbowitz, J. 2016. More Than Digital Dirt: Preserving Malware in Archives, Museums, and Libraries https://archive.org/details/16sThesisFarbowitzFinal

- Hypponen, M. 2026. The Malware Museum. https://archive.org/details/malwaremuseum

- Jackson, A. 2026. What are the pros and cons to encrypting digital files a Library or Archive is preserving? https://anjackson.net/zombse/062013%20Libraries%20&%20Information%20Science/static/questions/1054.html

RESOURCES

- MacGregor, R. 2019. Do not attempt this at home. https://anoldhanddigital.wordpress.com/2019/08/27/do-not-attempt-this-at-home/
- New York Public Library (NYPL). 2025. Ingest: Processed Archives. https://github.com/NYPL/digrepo/blob/gh-pages/docs/ingest/processed_archives.md#virus-detected-in-the-file
- Samaras, E. 2018. Dealing with computer viruses in digital collections https://blogs-archive.bl.uk/collectioncare/2018/11/dealing-with-computer-viruses-in-digital-collections.html
- Samaras, E. 2018. Researching malware at the British Library. https://www.dpconline.org/blog/researching-malware-at-the-british-library
- Schofield, J. 2009. ‘Mac game deletes your files: is it malware or is it art?’ The Guardian. https://www.theguardian.com/technology/blog/2009/nov/04/mac-game-art-deletes-files

RESOURCES

- The National Archives. 2026. Select and Transfer. https://www.nationalarchives.gov.uk/archives-sector/advice-and-guidance/managing-your-collection/preserving-digital-collections/digital-preservation-workflows/1-select-and-transfer/

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