

# Cyber-Physical Cascade Coordination

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## Cyber-Physical Cascade Reality

Documented events: NotPetya (2017), Colonial Pipeline (2021), CrowdStrike Falcon outage (2024), emerging ransomware affecting OT operations. Cross-domain coordination operates through CISA, sector-coordinator ISACs, and emerging IT-OT integration teams.

Emerging AI-augmented attack capabilities intensify cascade complexity.

## Cascade Substrate

Each IT and OT party contributes credentialed topology and operational observations. Cross-domain cascade analysis operates through declared federation; cross-sector cyber-physical operations admit through declared sector-coordinator federation.

Preemptive cascade-mitigation (network segmentation, OT-isolation, alternative-path activation), cascade-halting, and post-event reconstruction all operate against architectural records.

## Cyber-Physical Trajectory

Emerging CISA cyber-physical guidance, emerging sector-coordinator cyber-physical frameworks, emerging IT-OT integration standards all benefit from architectural cascade substrate.