Implementing AI/Computer Vision for Physical Security Operations

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This session will cover VMware's journey through a multi-year digital transformation centered around AI/ML-based security monitoring, decision making and response, within its global Physical Security organization, prior to VMware's acquisition by Broadcom. It does not represent current or future programs of Broadcom, Inc. and its affiliates.

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Context

- The world of physical operations including physical security is labor intensive, with limited technology adoption
- Operational scalability is a big challenge
- The industry is ripe for disruption with the recent advancements in edge technology including AI/ML
- VMware's physical security organization drove a multi-year digital transformation to address the challenge, with AI on security cameras as the key technology driver

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VMware Physical Security Digital Transformation Charter

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What

- Reimagine physical security
- Digital transformation of physical security using modern and emerging technology

Why

- More efficient way to grow & scale physical security capabilities (shift the mix of investment in tech & labor)
- Align with company mission - Software Defined physical operations & digital transformation
- Lead & be the best physical security function in the high tech industry!

Guiding Principles

- Upskill & uplevel security staff to focus on more value adding activities & make better use of technology
- Become more customer focused
- Collaborate closely with Workplace, IT, InfoSec & other partner groups

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Customer Experience Transformation

PRESENT:
Traditional
(The TSA Experience)

Access / Badging
Authenticate with badge scan; handle pull & accessibility button push Required.

Events & Incidents
Assistance for events and incidents requiring require calling security their mobile phone

Visitor Management
Check in at the reception, register for your visit, get a temp badge

FUTURE: Modern, Blended
(The Disneyland Experience)

Access / Badging Frictionless touchless access - VMware Passport and Biometrics

Events & Incidents
AI cameras, Drones and Robots identify incidents in real time and automate security response

Visitor Management Pre-enroll in through touchless system, use biometrics to get access to the building

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Security Operations Transformation

PRESENT:
Manual, labor intensive

Building patrols
Onsite security guards

SOC (Security Operations Center)
400K false alarms (yearly avg); centralized operations

Investigations
100's of hours spent on video review

Technology stack
Minimal - foundational systems only (badging + cameras)

FUTURE:
Modern, technology enabled

Building patrols
Security guards (onsite & remote) assisted by tech (Robots, Drones)

SOC (Security Operations Center)
AI assisted; respond only to real alarms; distributed operations

Investigations
AI powered automated video review

Technology stack
Advanced tech + foundational systems

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AI on Security Cameras – Double Click

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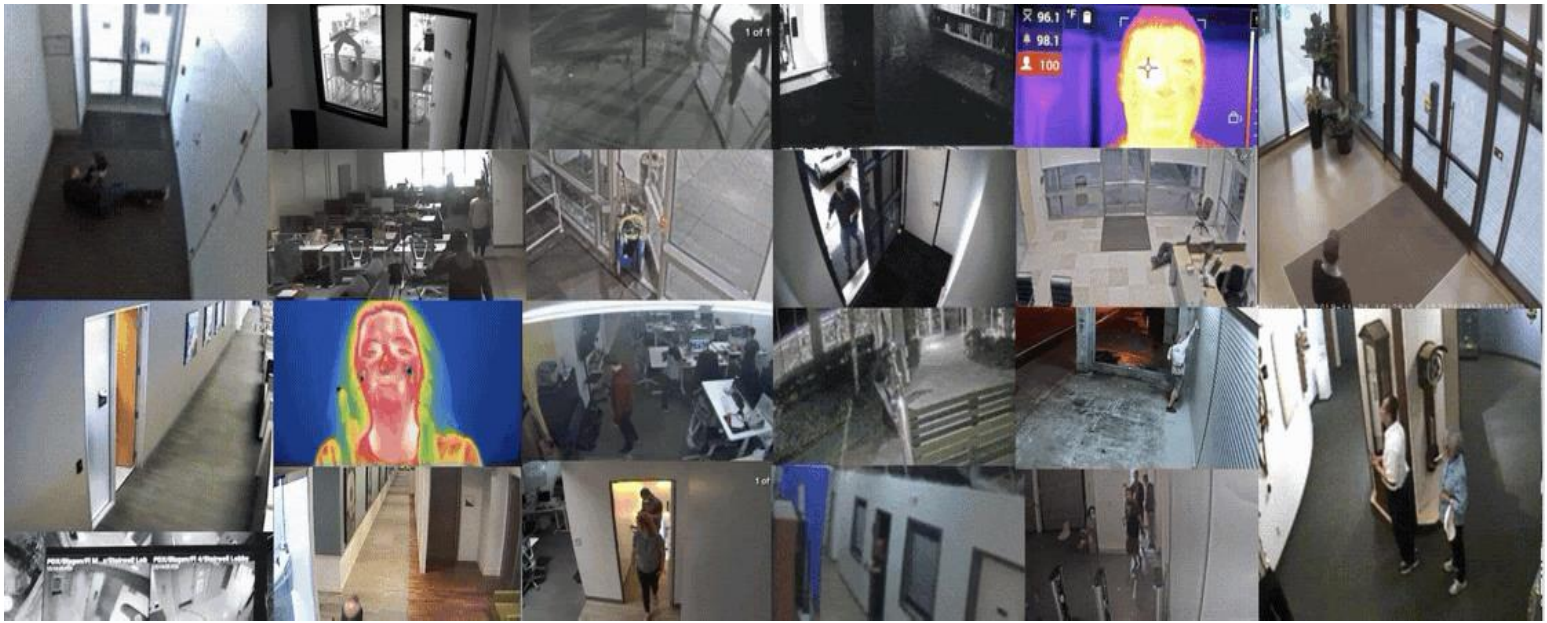
Problem Statement #1

1000’s of cameras, but no one is watching



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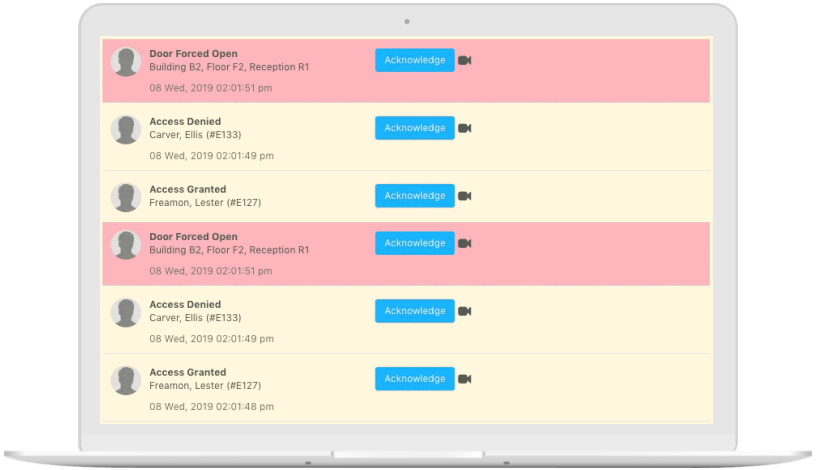
Problem Statement #2

1000's of alarm events every day, 99% are false



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Problem Summary

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Risk management:

- Inability to continuously monitor 1000’s of cameras
- Lack of real-time visibility to security incidents
- Lack of data encryption with legacy video systems (privacy risk)

Costs, scale & productivity:

- Labor intensive manual processes (patrols, monitoring, investigations)
- Time wasted processing large volume of false alarms
- Inability to scale security operation to support growing business needs

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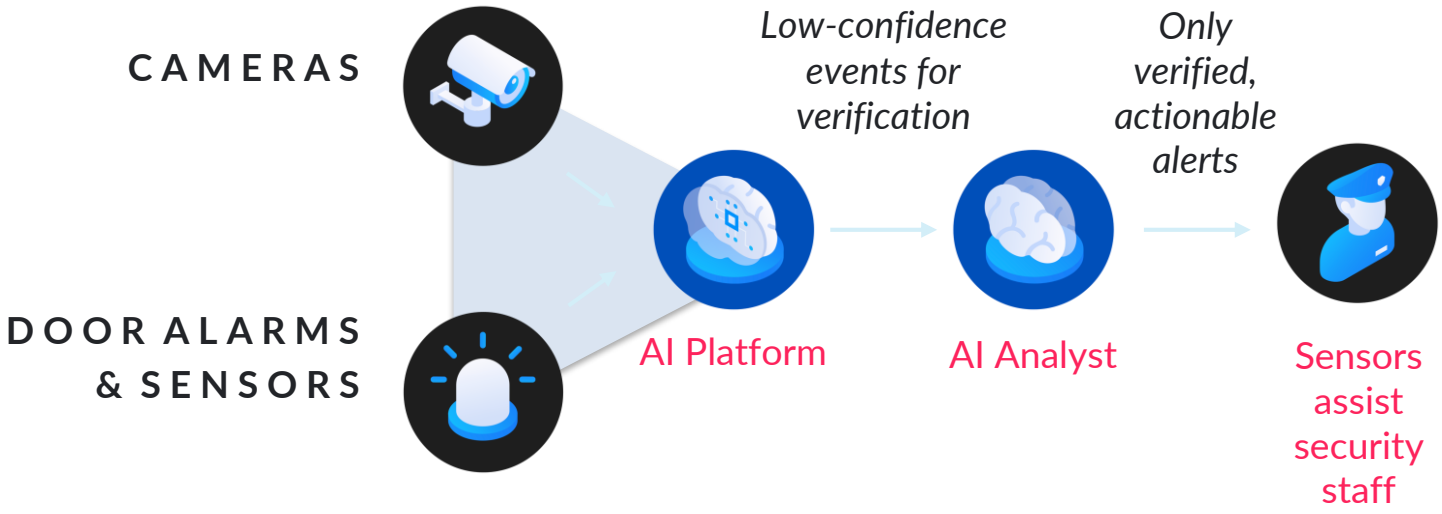
AI Workflow



- Works with existing security infrastructure
- Near human-level understanding of threats
- Minimal false alerts

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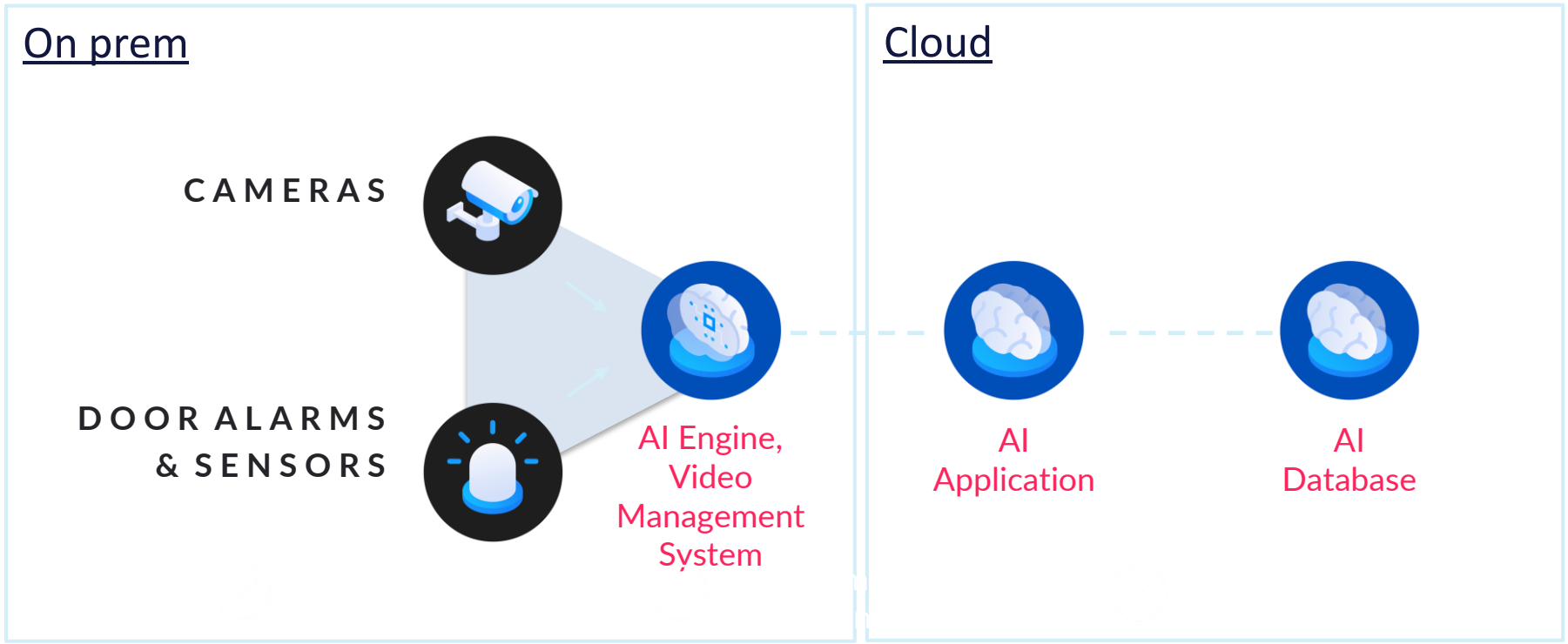
AI Architecture



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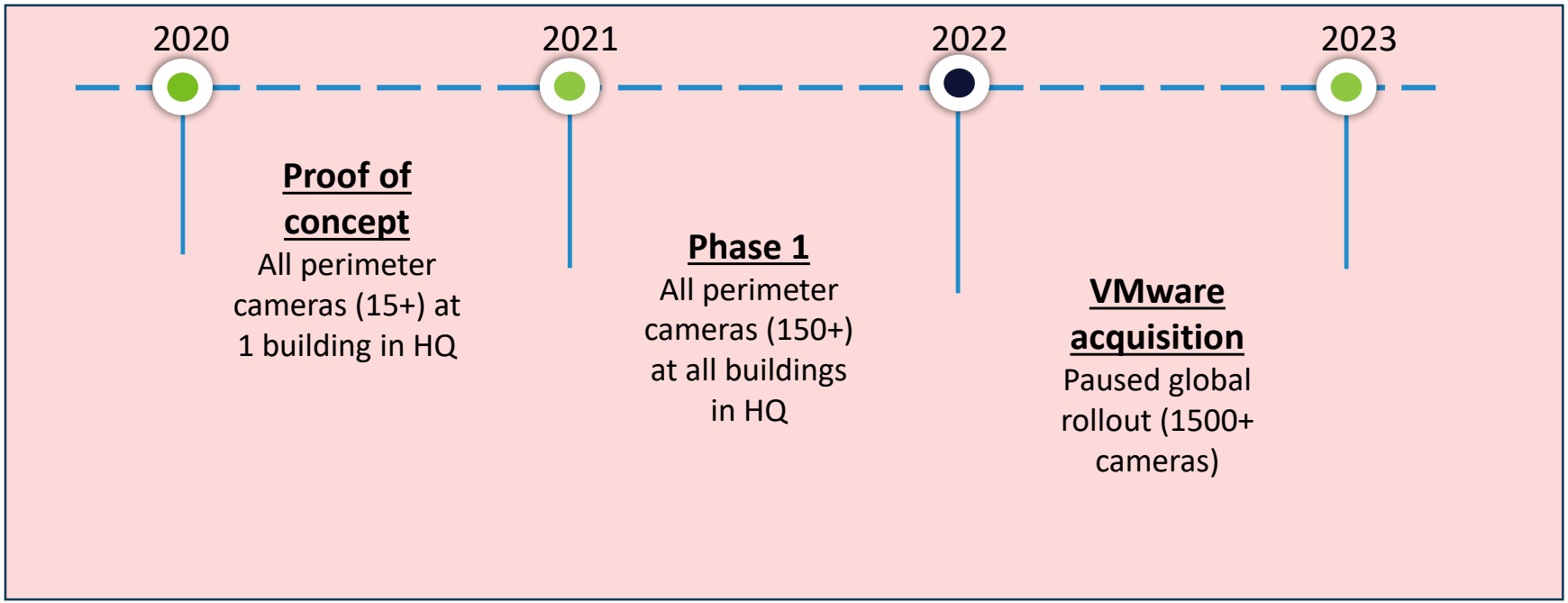
Deployment Timeline & Scope



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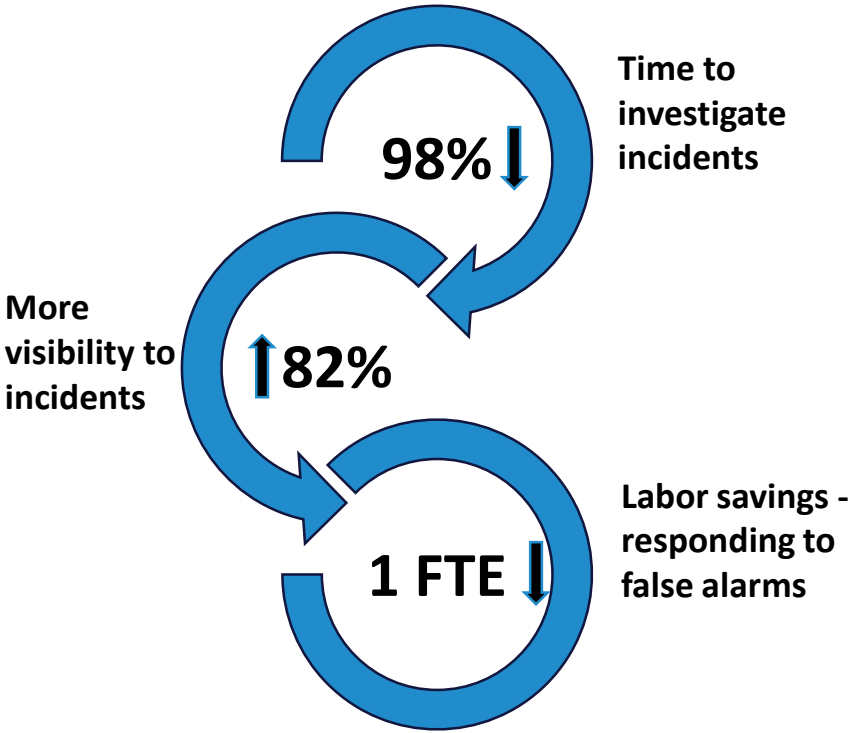
Business Impact

- Proactive security posture instead of reactionary
- Ability to scale more efficiently
- Increase staff morale
- End to end encryption of video data
- Non-security related benefits (for example: space intelligence / occupancy tracking)



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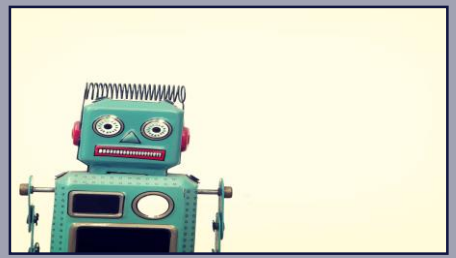
Implementation Challenges and Best Practices



Nascent technology:

- Run quick POC's to see what works

High price point & tough ROI:

- Selective, risk & impact based deployment
- Partner with other groups to amplify impact
- Focus on long term scalability vs short term savings

Risk averse & change resistant business:

- Get leadership support
- Focus on team member buy-in or transition

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Additional Resources

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Additional Resources

Related VMware blogs:

https://cio.vmware.com/2023/08/ai-in-the-world-of-physical-operations.html

https://blogs.vmware.com/vov/2021/08/27/seamless-physical-security-for-an-evolving-workplace/

https://blogs.vmware.com/vov/2021/02/11/embracing-the-digital-era-drives-innovation-by-the-vmware-physical-security-team/

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