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# Security Challenges and Opportunities –

For today & tomorrow

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The Intel logo is displayed in white, featuring the word "intel" in a lowercase, sans-serif font, with a registered trademark symbol (®) to its upper right. To the left of the text is a graphic element consisting of three overlapping squares in shades of blue and white, arranged in a stepped pattern.

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# World-changing Technology

## Our Purpose

We create world-changing technology  
that enriches the lives of every person on Earth

# How is the Security Landscape Shifting?

## Attacks on the Rise

**\$10.5**  
trillion

projected annual cybercrime cost to the world by 2025<sup>2</sup>

**62%**

of IT execs are increasing security solutions budgets<sup>3</sup>

**75%**

of companies attacked by Ransomware ran up to date endpoint protection software<sup>4</sup>

## Increasing Regulation

GDPR

HIPAA

PCI

NIST

## Increased Spending Year on Year

Worldwide Security Spending<sup>1</sup>

2017: ~\$94Billion

2019: ~\$120 Billion

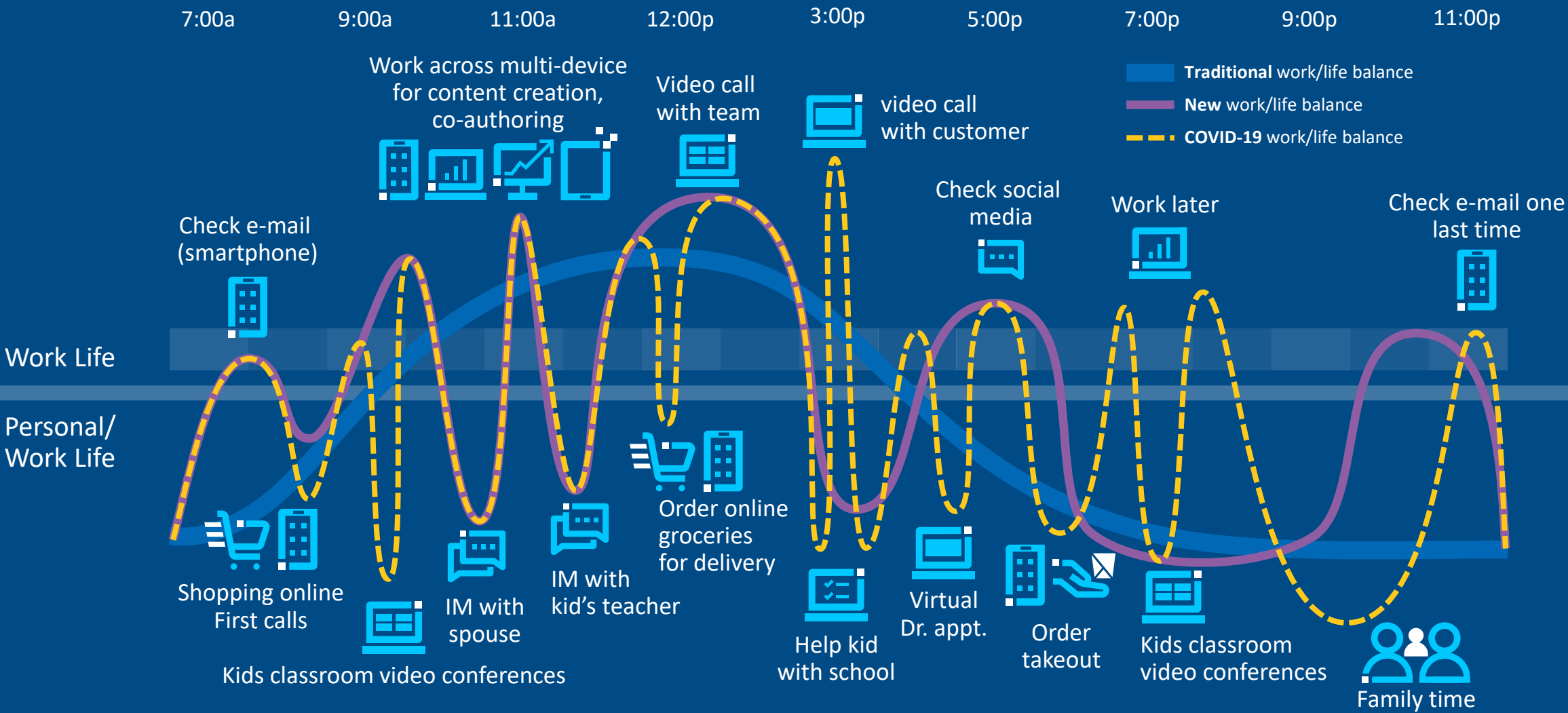
2020: ~\$132 Billion

2021: ~\$143.5 Billion forecast

1. IDC's Worldwide Security Spending Guide , V1 2021, February 2021
2. Cybersecurity Ventures, Cybercrime To Cost The World \$10.5 Trillion Annually By 2025 ([link](#))
3. IDG, GlobeNewswire, 2019 CIO Tech Poll, June 2019 ([link](#))
4. Sophos ([link](#))

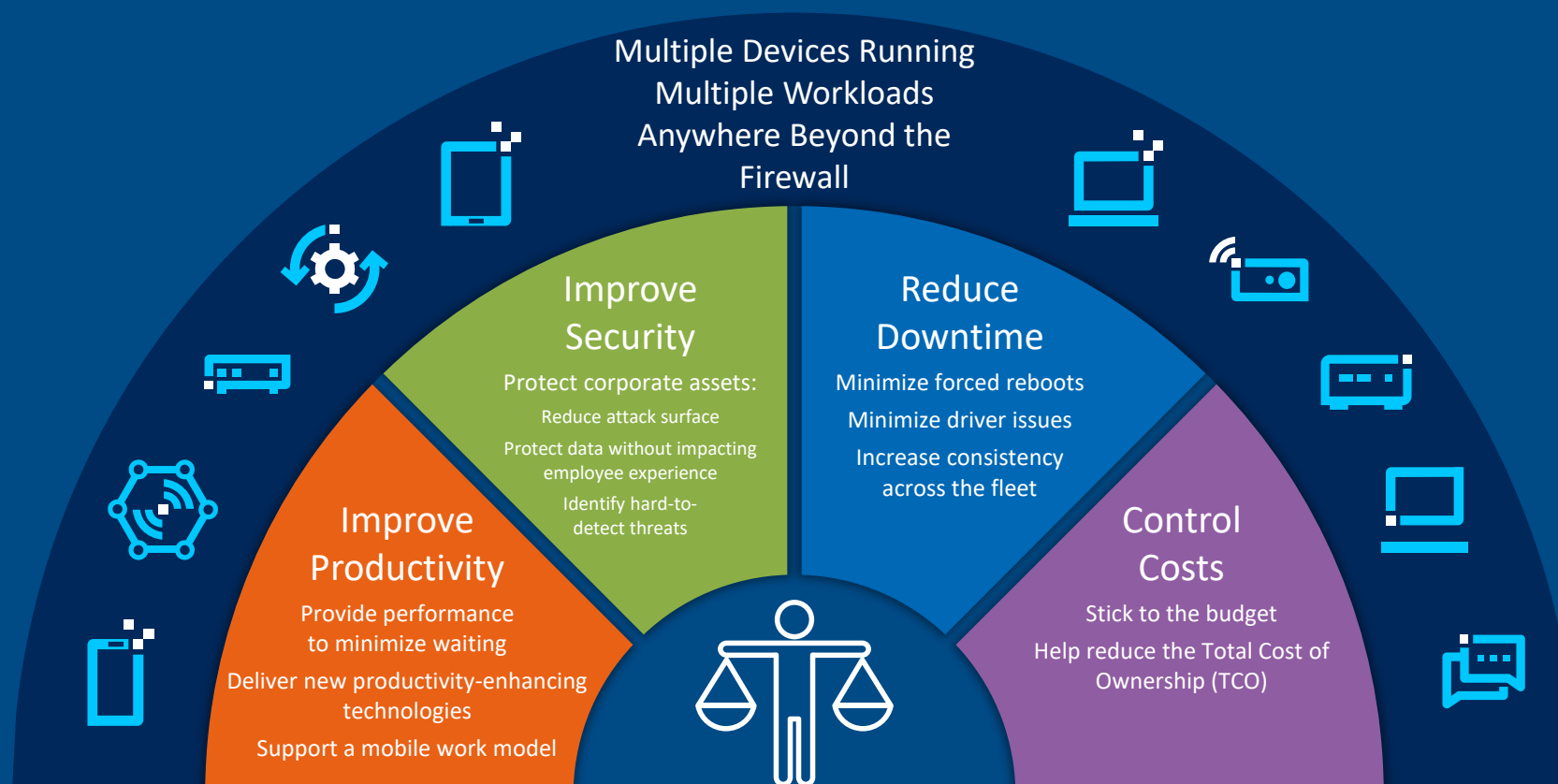
No product or component can be absolutely secure

# A Day in The Life



Source: Intel IT

# The IT Challenge: Balancing Top Priorities



Security engineered from the ground up can help IT be more strategic, take the pressure off the CISO, become more resilient and support the business



# Intel's End-to-End Security Perspective



We orient our platforms to put security features inside to alleviate a lot of the pressures that the government CISOs are facing.





# Security Starts with Intel

**1992**  
Intel drives the formation of the Desktop Management Task Force, the first open system for PC security management

For years, Intel has inspired organizations to raise the bar in the way they think about keeping products secure. Intel hardware security has played a pivotal role in building trust for these innovations. Security is in our DNA: yesterday, today and tomorrow.



"We are on record as saying that VT is the most significant change to PC architecture this decade"

Martin Reynolds, Gartner Senior Analyst

**2004**  
Intel® Virtualization Technology (Intel® VT)

**2006**  
Intel Virtualization Technology for Directed I/O

**2007**  
Intel® Trusted Execution Technology (Intel® TXT)



Secure enclaves in hardware to help protect application code and data



Bakes cryptographic keys into the silicon at manufacture



Pervasive, accelerated encryption in areas where it was previously not possible

**2015**  
Intel® Software Guard Extensions (Intel® SGX)

**2013**  
Intel® Platform Trust Technology (Intel® PTT) Integrated HW TPM2.0

**2009**  
Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI)



Intel® Hardware Shield addresses security needs on an increasingly remote workforce



Intel engineers invented ground-breaking technology to help shut down an entire class of attacks that long evaded software only solution

**2019**  
Intel Hardware Shield adds TXT-based trustworthy attestation to Intel® Runtime BIOS Resilience (Intel® IRBR) via Intel® System Security Report (Intel® ISSR)

**2021**  
Intel® Control-flow Enforcement Technology (Intel® CET) now available as part of Intel Hardware Shield, on 11th Gen Intel® Core™ vPro® mobile processors

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# Security @ Intel

## Advanced Security Features

Innovative processor and device capabilities rooted in hardware to help provide maximum protection for customer data

Examples



Servers



Clients



IOT

## Compute Lifecycle Assurance

Foundational security assurance & features built into every Intel product, maintained and managed across the entire lifecycle

BUILD

TRANSFER

OPERATE

RETIRE



# Compute Lifecycle Assurance

Assuring platform integrity throughout the compute lifecycle



## BUILD

Design, Source, Manufacture



## TRANSFER

Distribute, Integrate



## OPERATE

Provision, Manage, Update, Track



## RETIRE

Wipe, EOL, Log, Second Life

Prevent

Resolve

Innovate

Lead

Intel® Hardware Shield

# Built-in security to help protect your mission



Protected with  
Intel® Hardware  
Shield

## Advanced Threat Protection

Hardware-powered, AI-enabled threat detection without a performance hit

## Application & Data Protection

Achieved through virtualization-based security

## Below-the-OS Security

Lock down memory in the BIOS against firmware attacks and enforce secure boot at the hardware level

APPS



OS



VM



HYPERVISOR



BIOS/FIRMWARE



CPU



No product or component can be absolutely secure.



# A Strategy Built for Modern Endpoint Security

A simple, effective security strategy to help CISOs modernize government IT



Buy the right  
devices



Keep the devices  
updated and patched



Layer in additional  
services for greater  
protection



BUILT FOR BUSINESS

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