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# Key Trends Impacting Automotive Security Today and in the Future

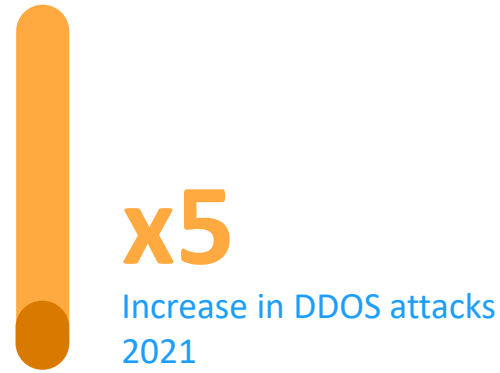
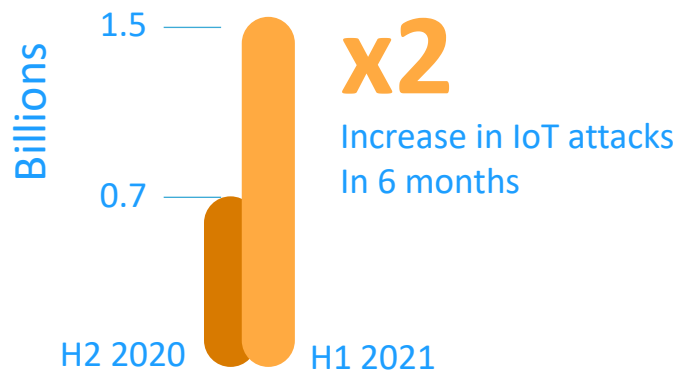
Pim Tuyls

CEO Intrinsic ID

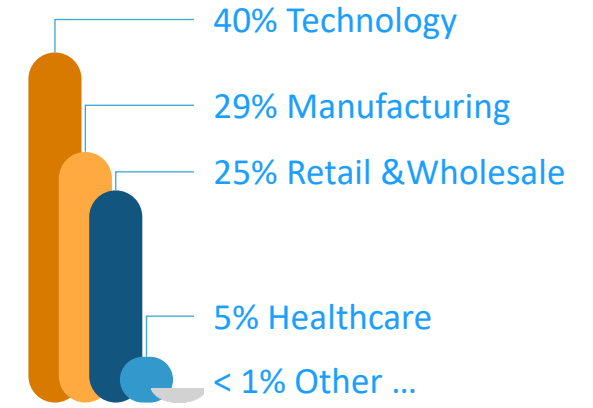
# Security Increasingly Important for Smart World



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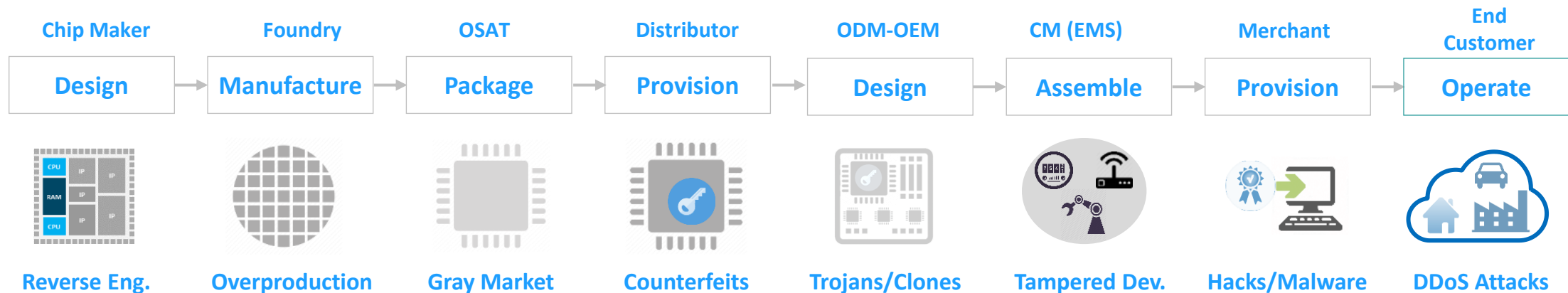
## IoT Attacks by Industry



Source: Kaspersky, Zscaler

**98% of all IoT Device Traffic is un-encrypted**  
**41% of all attacks exploit device vulnerabilities (PANW)**

## Complex and Untrusted Supply Chain



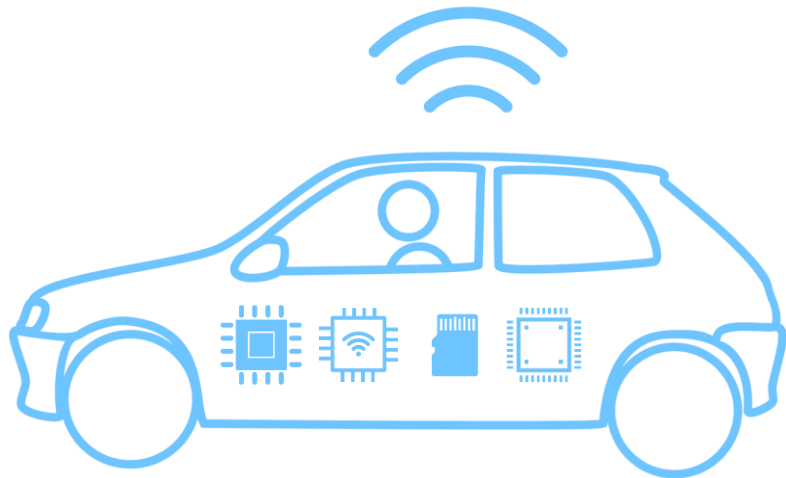
# Automotive is Part of the Internet of Things

**+7%** CAGR expected '19-'26 for  
Automotive Semi (incl. '20 dip)

Source: IHS Markit

**3,500** Semiconductors per  
hybrid vehicle

Source: U.S. International Trade Commission



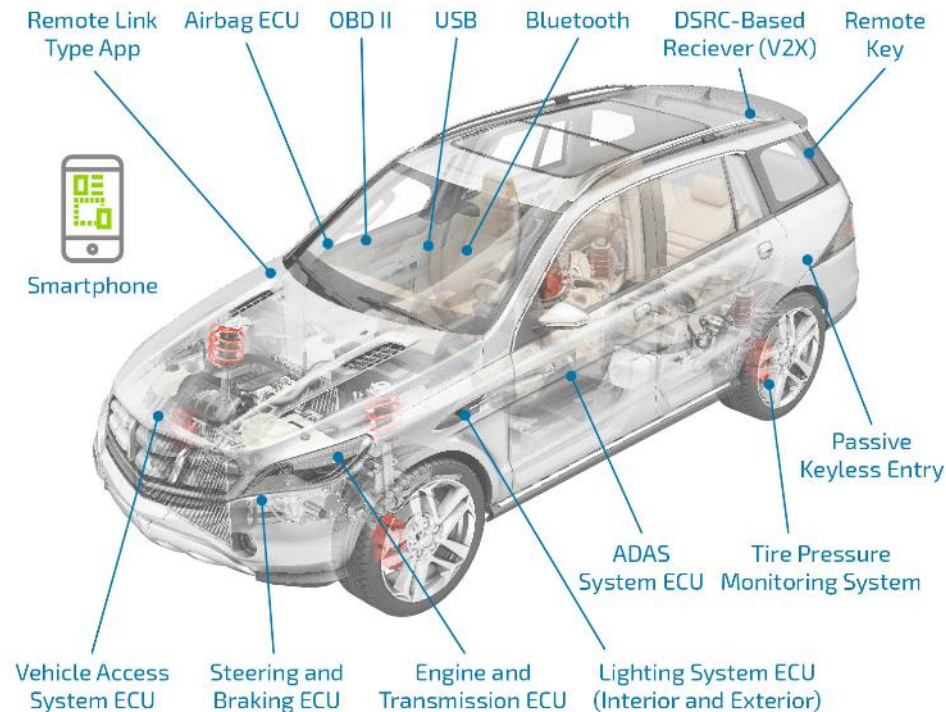
Automotive  
security starts at  
the semiconductor

# More Chips = Growing Number of Attack Surfaces



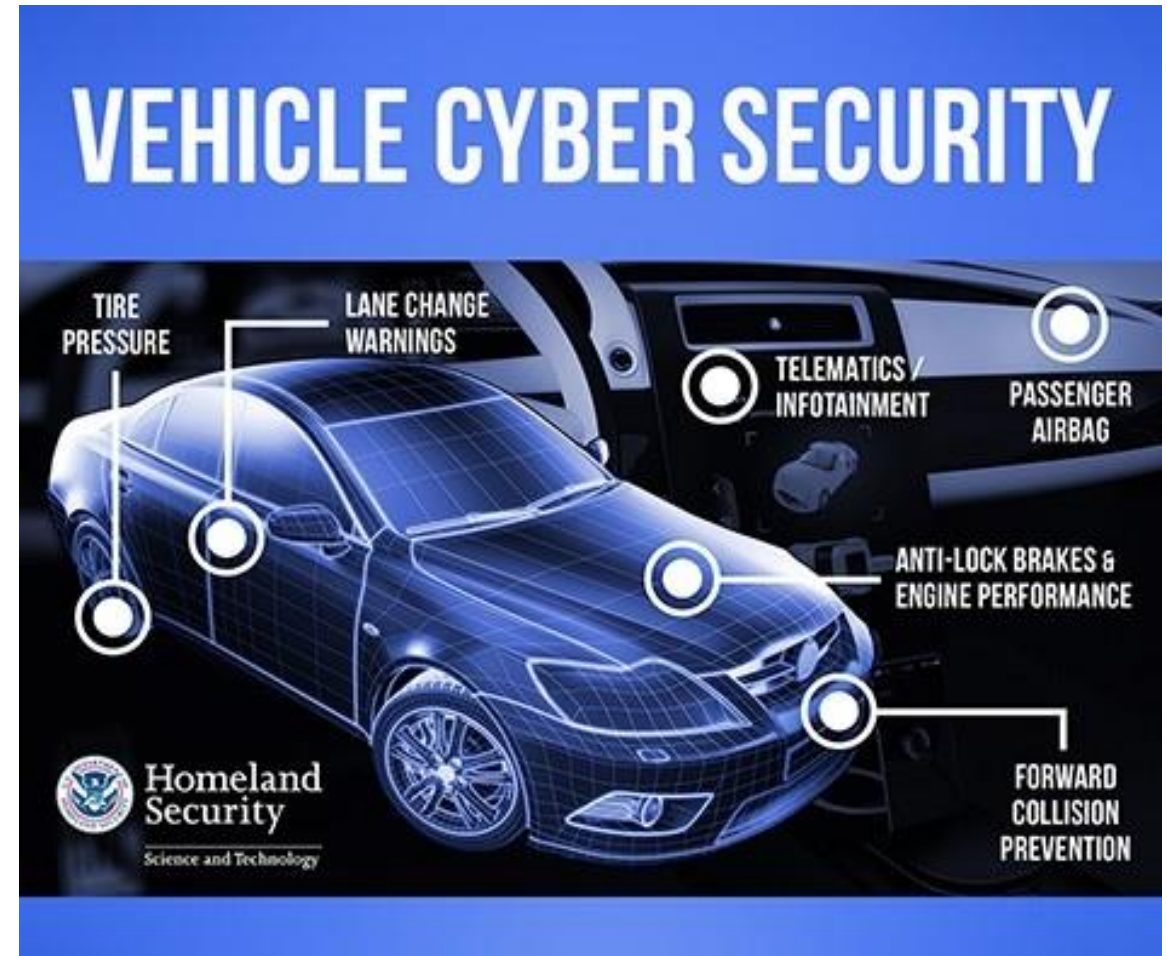
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Fifteen of the most hackable and exposed attack surfaces on a next-gen car



infopulse

Source: Infopulse, How to Ensure Automotive Cybersecurity in the Next-Gen Vehicles

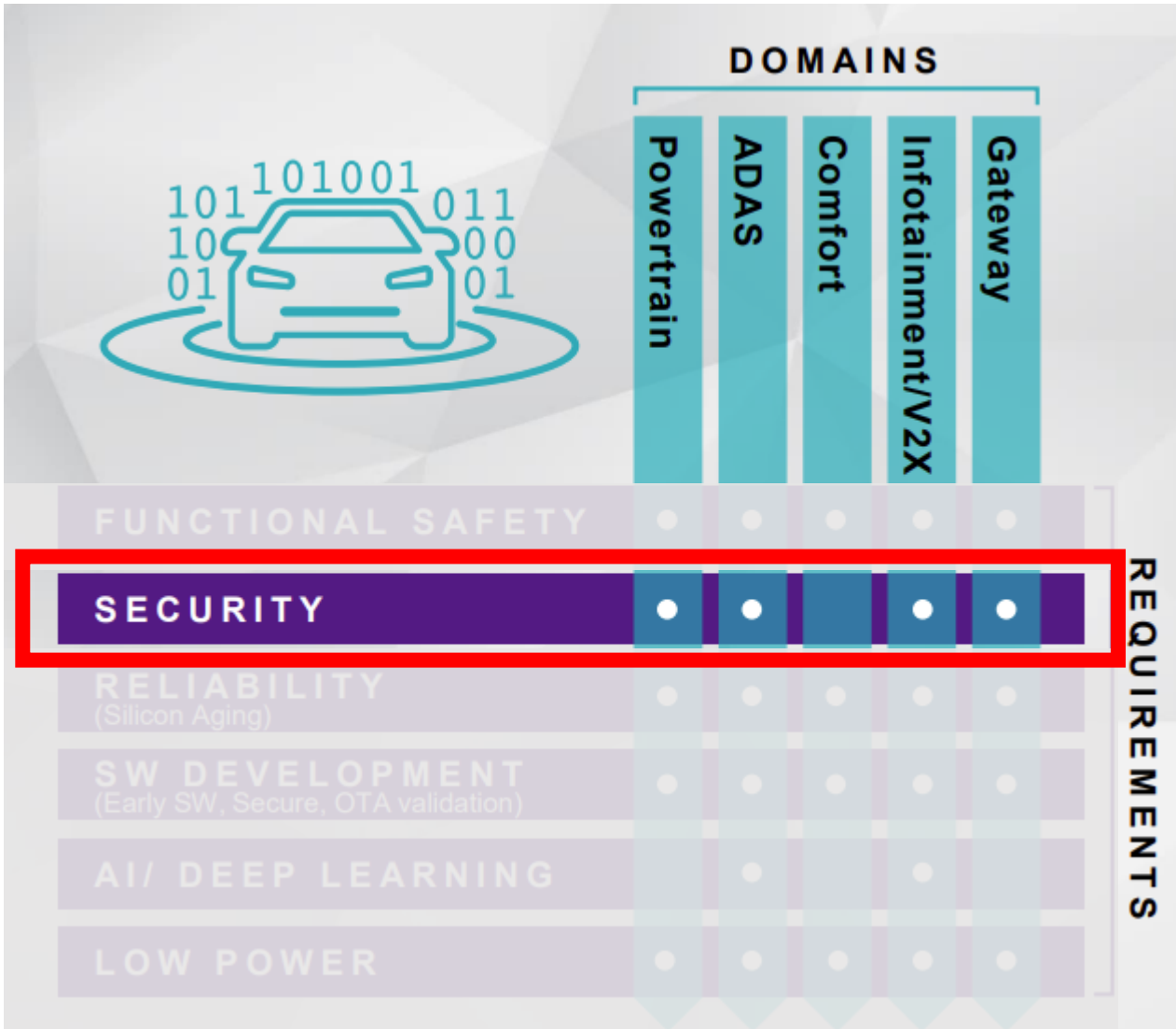


Source: Homeland Security

# Security Required for Many Automotive Domains



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Security is a vital requirement for many automotive domains

Attacks on any of these domains can cause functional safety concerns

Attackers finding their way into one domain use it as a steppingstone into others

# Unfair Advantage of the Attacker



Unlimited

Limited



Choice

Restricted



Unlimited

Restricted budget



Unlimited

Low/very low power



Choice

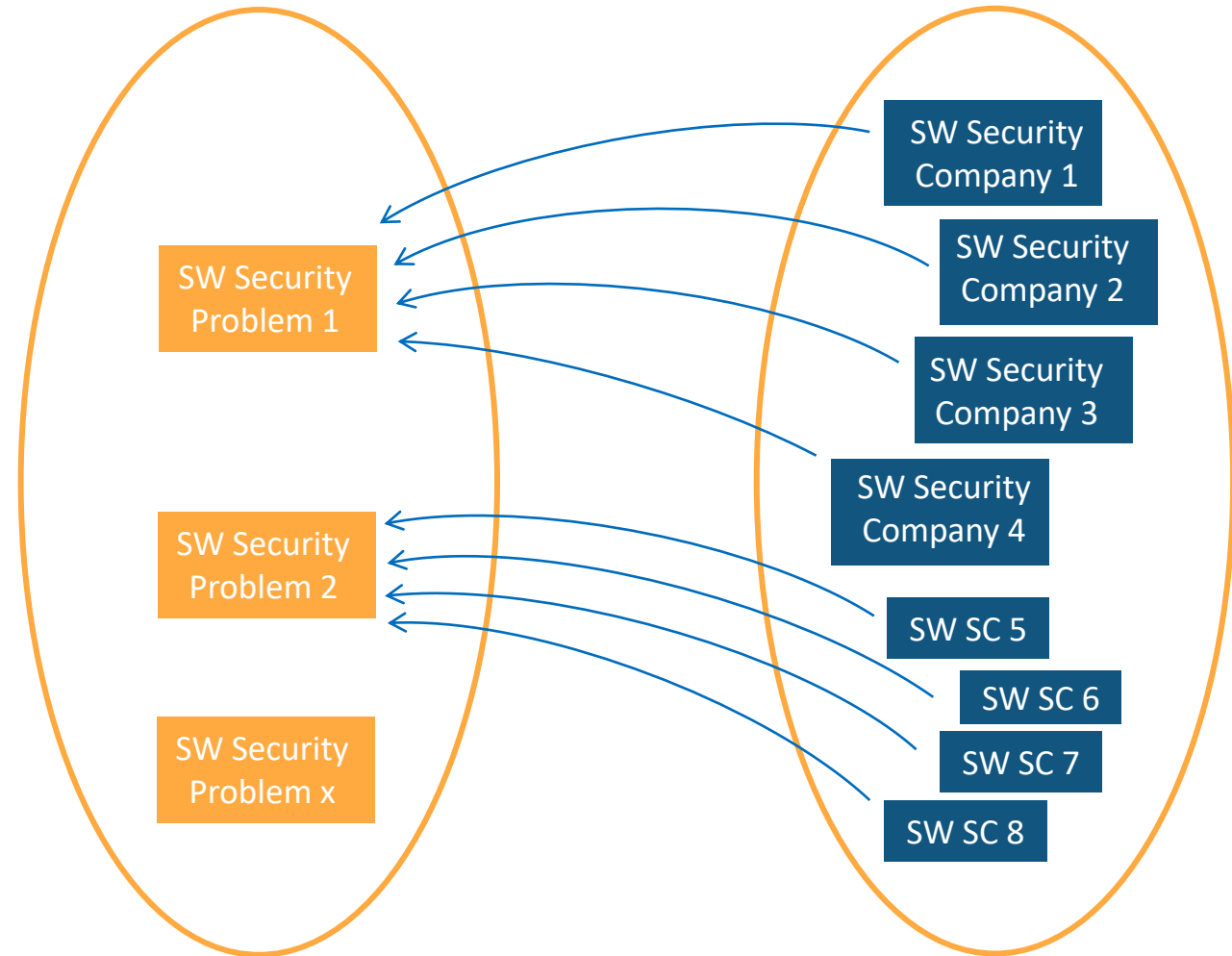
Wide range

# Software Security



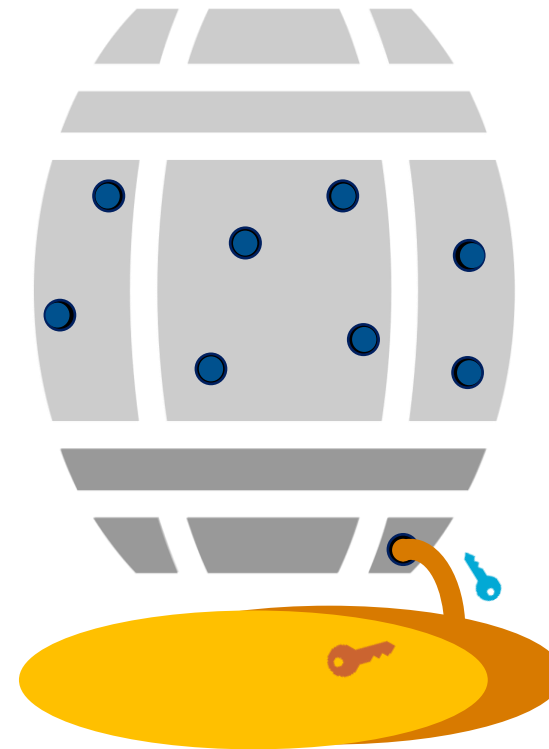
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- Easy to copy
- Easy to reverse engineer
- Easy to debug (while running)
- Easy(ier) to attack with side channels
- Easy to tamper with
- ...



# What Leakage Needs to Be Fixed First?

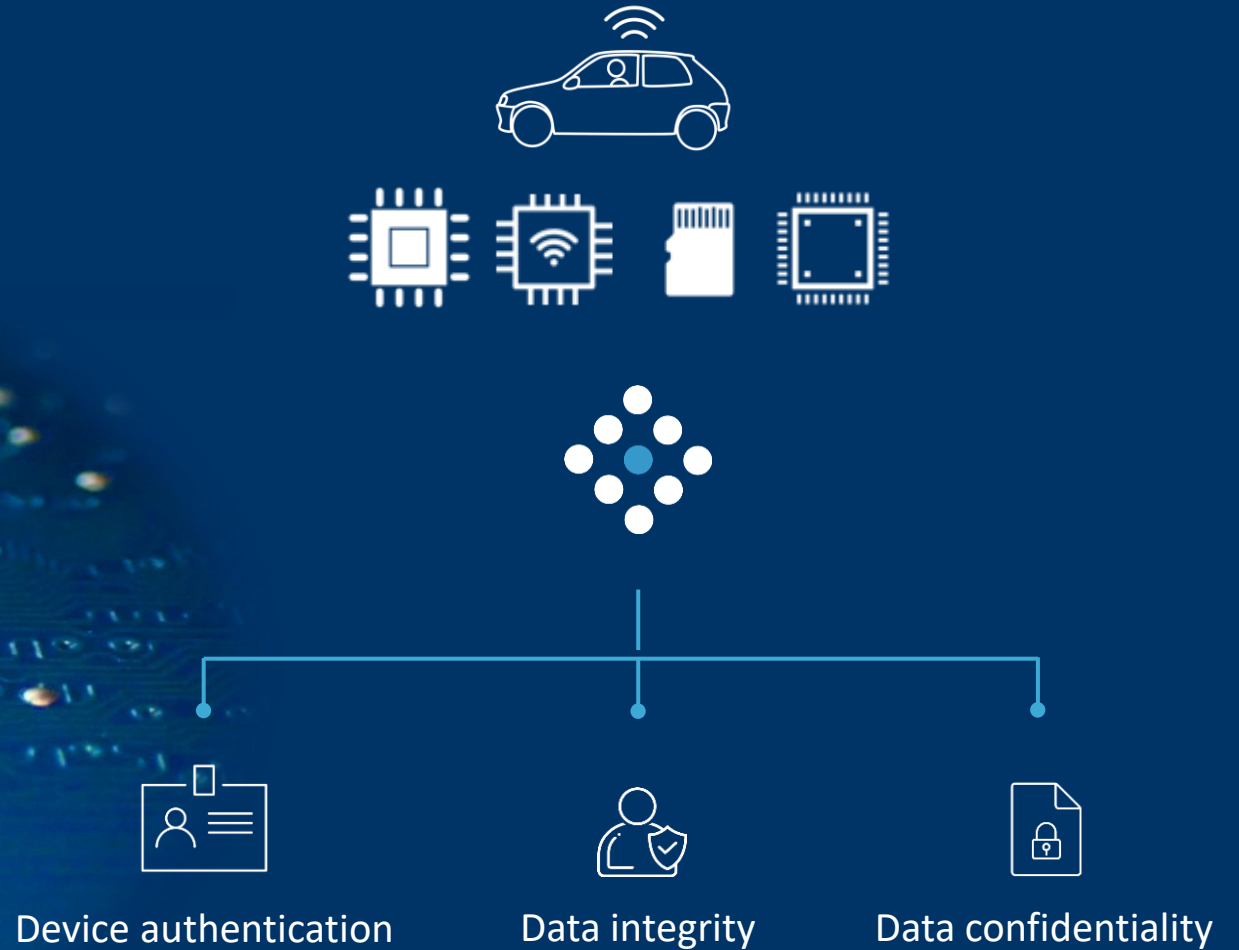
## The Leaking Barrel





# Root of Trust

100001011101100100011101101  
110110101000111011011000001  
011010001111011001100101100  
110011110111011011000010011  
101101011110001110000101110  
110010001110110111011010100  
011101101100000101101000111  
101100110010110011001111011  
101101100001001110110101111





**To Keep us ALL SAFE  
and make connected  
vehicles successful  
start automotive  
security with a hardware  
Root of Trust**