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Leveraging RFID: The Evolution of Security and Access Control
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Levels of Security

• What You Know
  – Passwords

• What You Have
  – Magstripe cards
  – RFID cards/tags/key fobs
  – Smartphones

• What You Are
  – Fingerprints; Eye retina; Biometrics
RFID Access Control & Management

• Building/Yard/Gate/Area Access
  – Commercial
  – Residential
  – Public
• Physical & Logical Access
  – Restricted/Secure Areas
  – Computer/IT Access
• Time & Attendance
  – Payroll
  – “Check-in” for staff (e.g., task completion)
• Emergency Mustering/Marshalling
  – Employee & Visitor Headcounts
Benefits of RFID-enabled Access Control & Management

- Safety and Security Compliance
- Audit Trails (e.g., entry and exit times)
- Un-manned Controlled Access
- Manage Workforce
- Emergency Incident Management
- Manage Infrastructure Utilization and Costs
Technology Choice

• In the beginning, there was Wiegand, then mag-stripe, then LF prox cards
• LF prox still represents 70%-80% of physical access deployments in the US
• But now there is much more choice – more secure, contactless choice…
  – HF (High Frequency)
    • Limited range; Higher security
    • Cards, Bracelets, Key Fobs
  – Passive UHF
    • 3-5 meter range (can be adjusted)
    • Cards and Bracelets
  – Active RFID
    • Longer range (can be adjusted)
    • Cards
  – Emerging is NFC (based on HF)
    • Limited range (few centimeters)
    • Smartphones
Market Size Snapshot: Access Control

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<tr>
<td>Revenues ($Millions)</td>
<td>$1,112.8</td>
<td>$1189.7</td>
<td>$1533.8</td>
<td>6.6%</td>
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<td>% of Market</td>
<td>25%</td>
<td>23%</td>
<td>19%</td>
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- The movement and use of valuable equipment and personnel resources can be monitored through transponders attached to vehicles, devices, computers, etc., or can be embedded in credit card-sized security badges or key fobs.

- Employee ID cards (building/door access) are the center of volume and revenue; Logical/computer access limited.

- Application historically dominated by low-frequency (LF) proximity cards; however, more-secure HF solutions have gained share in recent years.

- The value chain in this segment is very established, including in relation to ICs and systems integration, compared to the other primary application areas.
Several Critical Sub-Applications Stand Out for Volume, Growth & Adoption

- Main building access (LF, increasingly HF)
  - Please note that yard/gate/lot access control solutions are only accounted for here if a card is presented for access
  - If the vehicle is tagged, then the deployment is classified as an AVI application
- Computer/logical/secure system access (HF as well as non-RFID technologies like biometrics)
- Ski lift access (HF, passive UHF) has been a successful niche – see Vail Resorts support of passive UHF for ski lift access
Hospitality Sector Showing High-Growth Promise for RFID

• RFID-based security access control within hospitality environments such as casinos, hotels and resorts continues to gain traction and momentum

• Legacy mag stripe cards present higher maintenance costs and growing safety/security vulnerabilities

• Key applications:
  – Room Access
  – Customer Loyalty tie ins
  – Hybrid/Multi-Application Support
  – NFC in the mix here along with LF, HF & UHF RFID
Hospitality Enterprises “Like” RFID for Multi-Application Support

• Hospitality evaluating and deploying more secure HF solutions as well as passive UHF solutions (cards, wristbands, etc.) and, in some cases, marrying access control with social media capabilities:
  – Facebook “Likes” as a resort guest at kiosks located outside facilities/amenities while enabling access to guestrooms, pool area and more
  – Facebook “Likes” for specific rides and features at amusement parks such as Coca-Cola park in Israel
NFC & Mobile Access: The Nuts & Bolts Required to Facilitate

• NFC-enabled handsets

• NFC-enabled readers, electromechanical locks and wide ecosystem of third-party hardware

• Ecosystem of Mobile Network Operators (MNOs), Trusted Service Managers (TSMs) and others to deliver and manage mobile credentials

• Education, Hospitality and Enterprise Adopters
Issues Facing RFID Access Control: Federal Agencies

• Getting newer, available RFID hardware to work with existing infrastructure and cards
  – US General Services Administration (GSA) FIPS 201 challenges. An approved product does not simply make you compliant, it needs to work with current infrastructure
  – A holistic, system-wide approach is key
  – Interoperability testing now on the table
Issues Facing RFID Access Control: Enterprises

• Enterprises are frequently deciding not to decide…sticking with decades-old prox technology knowing it is less than secure
  – Why stick with prox? “It just works.”
  – However, some contactless smart cards are CHEAPER than prox cards and yet the technology is still dominant
  – Added functionality and increased security of contactless should be enough to justify re-carding and swapping out old readers…but the pace seems almost glacial
Why No Mass Migration to Newer RFID Solutions for Access & Security?

- So, if cost is right and security is improved, where is the virtual mass migration?
  - The not-so-dirty secret seems to be that parts of the access control supply chain find it easier to push the older RFID technology
  - Dealers and integrators know prox in and out and can sell and deploy systems quickly and cheaply
  - Deploying newer RFID technologies can take longer and require more effort
  - Fear of loss of recurring cards sales if open standard technology adopted
  - Lengthy lifecycle for prox (as long as 10-20 years!)
RFID Access & Security Market in Need of a Reset to Push New Solutions
Thank You