Privacy and Security by Design

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While significant attention has been given to security and privacy concerns surrounding pharmaceutical development, manufacturing, and supply, considerably less has been given to medical devices and diagnostics. This is perplexing, since for medical devices particularly, the confluence of IoT and mobility represent one of the most attractive areas of cyberattack. Personal medical records are now valued 10-20 times more highly than financial data. This information can be used to create online personas, which in turn are used to propagate massive identity theft and other crimes. This session will be a call to action to help combat these worrisome emerging trends.
Growing Threat

Data Breaches by Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>263</td>
</tr>
<tr>
<td>Other</td>
<td>159</td>
</tr>
<tr>
<td>Government</td>
<td>137</td>
</tr>
<tr>
<td>Financial</td>
<td>118</td>
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<tr>
<td>Education</td>
<td>102</td>
</tr>
<tr>
<td>Retail</td>
<td>102</td>
</tr>
<tr>
<td>Technology</td>
<td>90</td>
</tr>
</tbody>
</table>

Growing Threat

Data Records Lost/Stolen by Industry

- **Government**: 43% (307,122,342 records)
- **Healthcare**: 19% (134,385,415 records)
- **Other**: 17% (121,129,222 records)
- **Technology**: 12% (84,394,833 records)
- **Retail**: 6% (40,075,707 records)
- **Education**: 3% (19,328,253 records)
- **Financial**: <1% (1,074,043 records)

Source: Not All Data Breaches Are Created Equal, HelpNetSecurity, Feb 25, 2016
“As attackers discover new methods to make money, the healthcare industry is becoming a much riper target because of the ability to sell large batches of personal data for profit.”

- Dave Kennedy, CEO of TrustedSEC LLC

“Stolen health credentials can go for $10 each, about 10 or 20 times the value of a U.S. credit card number.”

- Don Jackson, Dir Threat Intelligence, PhishLabs

Medical identity theft is often not immediately identified by a patient or their provider, giving criminals years to milk such credentials.

Source: Your Medical Record is Worth More to Hackers Than Your Credit Card, Technology News, Sep 24, 2014.
“We estimate spending by healthcare providers and OEMs on healthcare cybersecurity to reach $5.5 billion by 2016. However, only $390 million of that will be dedicated to securing medical devices. Healthcare stakeholders have to understand that there is a new hostile environment that will emerge around networked medical devices and that threat actors have multiple levels of skills and diverging motivations for attacking the medical IoT.”

- Michela Menting, Research Director at ABI Research

Protect assets inside the traditional security perimeter.

Protect “new” IT assets external to the traditional security perimeter.

Establish an adaptive defence mesh surrounding the virtual enterprise.
Earlier this month Johnson & Johnson notified 114,000 patients of a security hole in its Animas One Touch Ping connected insulin pump … the flaw could permit hackers to take control, alter dosage levels and disable the device altogether. It also exposed the weakness of health care IOT networks.

“IOT is the new frontier of attack where we’re going to start seeing a rapid increase in these attacks. Healthcare organizations have been very focused on protecting traditional IT … but [leave] an open door with IOT devices …”

- Pedro Abreu, Chief Strategy Officer, ForeScout

Moving regulatory review gates upstream, near the front of the product development process, enables designers to build security and privacy requirements into products from the beginning.

This insures global privacy regulations are met (e.g., covering PHI), and prevents unnecessary delays or re-work after the product has passed through final review.
Security Tools

Stealth(core)
Fundamental security protection for key datacenter assets – servers, desktops and laptops; supports micro-segmentation

Stealth(identity)
Advanced physical & behavioral biometrics; distributed trust authentication to validate and protect access to individual and corporate assets

Stealth(analytics)
Leverages security information and events to analyze vulnerabilities and threats; auto-configures security policies to prevent breaches

Stealth(cloud)
Stealth protection for VMs in public or private clouds; Extension of Stealth protected datacenters to AWS and Azure public clouds

Stealth(mobile)
Provides ability for mobile devices to securely access Stealth protected assets in the datacenter

Identity

Analytics

Cloud

Mobile
Solutions

Integrated Medical Device Management
Rapid response in remediating product safety issues, delivered from a single point of control and service delivery

- Help Desk
  - Single Point of Contact
- Self-Service Portal
- FDA & OEM
  - UDI, Alerts, Recalls
- Predictive Analytics
- Integrated Medical Device Management
  - System of Engagement
    - Modern interface for all personas interacting with the IMDM system
  - System of Record
    - Metadata storage and indexing
    - Archives for audits and compliance
  - Dispatch System
    - Geo-enabled dispatch
    - Just-in-time parts delivery
- Protected by Unisys Stealth®

- Product Specs and Revisions from Device Manufacturer
- OEM Parts Depot
- Device Manufacturing: Optional Reported Incidents
- Data Analytics and Reporting
- Clinical Engineering (Admin)
  - Assets and Contract Management
- Health Checks and Dispatch, Physical Inventory (Field Services)
- Level 1 Clinical Engineers
Significant spending is being made in Healthcare IT but only a small fraction is currently focused on medical devices.

As healthcare IT makes greater use of conjoining technologies (cloud, networking, mobility) the attack surface becomes geometrically greater.

To help thwart this growing threat and insure patient protection, some medical device manufactures have recently invoked a “Privacy and Security by Design” development initiative.

IT vendors who cater to this industry should work more closely with medical device and diagnostics companies to support this objective.
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#pharmagenie