Safety for the Connected World

Aiming to be the Global Leader in Cyber Security, starting from Japan
AppGuard and TRUSTICA

Endpoints Servers

Cloud Native Computing

TRUST and Privacy Framework: Attestation, EPID, Small Crypto Footprint

SGX, TXT, VBS
SEV SME
TPM
HW Protected Key Store

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Old Way: Perimeter Defense

Perimeter Melt down: 0-Trust network and 0-Trust Peers

Data Privacy is sealed at the origin

IDS/IPS
Anti-Virus
Signature and constant Signature Updates
Detection Oriented

Traditional Security
Trust and Attestation: Patterns

• Sensitive Data sharing among “Circle of Trust” members:
  – Data is encrypted the moment it is created
  – Can only be viewed by Group Members: Financial Transactions, Shared Video, Shared Evidence

• Allows each member share information with designated group members without exposing the information to outside.

• Anonymity: No other group member can know the originator unless the publisher of the data wants to reveal
Foundation for End-to-End IoT Security: “Operating System for the IoT Eco System”
Trust and Attestation: Key Elements

• Immutable Identity for Every IoT Device
• IoT Onboarding with “call-home” and provisioning
• Establishes Platform Identity
• Based on Hardware root of Trust: Private key is in Silicon (i.e. TPM’s Endorsement Key)
• Rich Privacy Protection
  – Mapping Attack Defense
  – Anonymous Trusted Business Transactions
• Authenticates “platform” identity through remote attestation using asymmetric (public and private key) crypto.
• Built-in Identity for Device Registration and Provisioning
TRUSTICA Management System: Trust and Control

Group Identity
TCG Remote Attestation
Dial-Home on boarding
Anonymity Preserved within
IoTGuard Management System Establishes Trust for:
- Discovery/Revoke
- Device Identity, Credentials, Authentication
- Attestation
- Data-At-Rest (Containers)
- Data-In-Motion with Standard Protocols
- Policy Management
- Auditing
- Monitoring
- Alerting
Management System Adheres to IoT Standards

IoT Service Platform (TLS, AMQPS and MQTT)

Authentication
Onboarding
Provisioning
Remote Attestation

Event Bus
Trust Bus
Policy Bus

IoT Event Hub

Analytics

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Safety for the Connected World
Kakogawa City and Kobe City
- Bus Location, Taxi, Traffic Flow Safety
- Safety Monitoring
- Crime Reduction for Safe City: For Children and Elderly

Car Sharing-TRUSTICA Mobile as a Secure Platform for Virtual Keys
TRUSTICA MOBILE

App for mobile devices (Android and iOS)
✓ Highly secure end-to-end communication and data exchanges
✓ Continuous device validity, safety, and integrity check via remote and dynamic attestation
✓ Complete Data protection of information stored in TRUSTICA Mobile’s TrustSpace

Technology: Uses open protocols
- Binding user information with Device H/W credentials
- Distributed key management
- Remote and Dynamic Attestation technologies: device validity, safety, and integrity
- Isolation Technology for secure data containment: complete data protection
- Policy enforcement via assurance levels: high degrees of authentication
- Trust relationship management: TRUST Circles
TRUSTICA Final Word

- OS for the Connected World
- Data privacy and integrity the moment is created [SSL, TLS, etc. not secure]
- Working examples
  - Two cities in Japan
  - V2I
  - Currently working with Car Sharing to store Virtual Key
  - TRUSTICA Mobile for Multi-Factor Authentication for Banking applications