NCCoE TRUSTED CLOUD: A SECURE SOLUTION

Donna Dodson
Associate Director Chief Cyber Security Advisor of the Information Technology Laboratory, Chief Cybersecurity Advisor for the National Institute of Standards and Technology and Director of NIST’s National Cybersecurity Center of Excellence (NCCoE).

Zulfikar Ramzan, PhD
Chief Technology Officer RSA
Mission

Accelerate adoption of secure technologies: collaborate with innovators to provide real-world, standards-based cybersecurity capabilities that address business needs
Foundations

Collaborative Hub

The NCCoE assembles experts from businesses, academia, and other government agencies to work on critical national problems in cybersecurity. This collaboration is essential to exploring the widest range of concepts.

As a part of the NIST cybersecurity portfolio, the NCCoE has access to a wealth of prodigious expertise, resources, relationships, and experience.
NCCoE Principles

- Standards-based
- Modular
- Repeatable

- Commercially available
- Open
- Usable and Transparent
Portfolio

*Consortium/Retail*
- Multifactor Authentication for e-Commerce
- Consumer/Retail: Multifactor Authentication for e-Commerce
- Data Integrity: Recovering (SP 1800-11)
- Derived PIV Credentials (SP 1800-12)
- DNS-Based Email Security (SP 1800-6)
- Energy: Identity and Access Management (SP 1800-2)
- Energy: Situational Awareness (SP 1800-7)
- Financial Services: Access Rights Management (SP 1800-9)

*Financial Services*
- Financial Services: Privileged Account Management
- Healthcare: Securing Picture Archiving and Communication Systems
- Healthcare: Securing Wireless Infusion Pumps (SP 1800-8)
- Hospitality: Securing Property Management Systems
- Mitigating IoT-Based DDoS
- Manufacturing: Capabilities Assessment for Securing Manufacturing Industrial Control Systems
- Mobile Device Security: Cloud and Hybrid Builds (SP 1800-4)

*Building Block*
- Attribute Based Access Control
- Healthcare: Securing Electronic Health Records on Mobile Devices (SP 1800-1)
- Healthcare: Securing Picture Archiving and Communication Systems
- Healthcare: Securing Wireless Infusion Pumps (SP 1800-8)
- Hospitality: Securing Property Management Systems
- Mitigating IoT-Based DDoS
- Manufacturing: Capabilities Assessment for Securing Manufacturing Industrial Control Systems
- Mobile Device Security: Cloud and Hybrid Builds (SP 1800-4)

*Building Block*
- Trusted Cloud
- Mobile Device Security: Cloud and Hybrid Builds (SP 1800-4)
- Mobile Threat Catalogue
- Privacy-Enhanced Identity Federation
- Public Safety/First Responder: Mobile Application SSO
- Secure Inter-Domain Routing
- TLS Server Certificate Mgmt
- Transportation: Maritime: Oil & Natural Gas
- Trusted Geolocation in the Cloud (NISTIR 7904) – Trusted Cloud
SP 1800 Series: Cybersecurity Practice Guides

- Volume A: Executive Summary
- Volume B: Approach, Architecture, and Security Characteristics
- Volume C: How-To Guide
NCCOE TRUSTED CLOUD PROJECT

Helping businesses and the government unleash the power of the cloud
Opportunity with Cloud Technology

Cloud Characteristics

- Flexible
- Available
- Resilient
- Scalable

Benefits to an Organization

- Security
- Efficiency
- Innovation
- Competitiveness
Organizational Requirements

- Comply with applicable laws
- Who owns the information?
- What type of information?
- Where is the information?
- Meet organization's cybersecurity risk-management policies
Two Paths to the Cloud
Security Objectives

CONSISTENCY

FLEXIBILITY
Overview of Trusted Cloud Project

- NCCoE Trusted Geolocation in the Cloud (aka as Trusted Cloud) project
- Trusted Cloud security capabilities across different cloud service models
- NIST Special Publication (SP) 1800
Current Implementations

**Hybrid Cloud IaaS**

Lift and shift a multi-tier workload between the NCCoE data center and the IBM cloud and maintain a connected management plane across the Internet.

**Private Cloud IaaS**

Protect a sensitive high-value workload like an authentication/authorization system that interfaces with an application container workload supporting cloud native applications.

![Logos](image-url)
Trusted Hybrid Cloud Architecture

NCCoE

Management Plane

RSA
HYTRUST
VMware
Dell
Intel

Workloads

Web Server
Application
Database

IBM Cloud

Management Plane

RSA
HYTRUST
VMware
Intel

Workloads

Web Server
Application
Database
What’s Next?

1. Review NCCoE Projects
2. Sign-up for NCCoE Updates
3. Submit a Project Idea to NCCoE
4. Collaborate and Share Best Practices