

Integration Is As Important as the Lesson Learned

Patrick Lardieri, Lockheed Martin



Honeywell



**Rockwell
Collins**



- **NCR Background**

- Developed by DARPA in the 2009-2012
- Transitioned from DARPA to TRMC October 2012
- TRMC charged with responsibility to transition capabilities for use by DOD test and training communities

- **NCR Vision**

- ***Be recognized as the cyberspace test range of choice*** for providing mission tailored, hi-fidelity cyber environments that enable independent and objective testing and evaluation of advanced cyberspace capabilities

- **NCR Mission**

- Provide secure facilities, innovative technologies, repeatable processes, and the skilled workforce
- Create hi-fidelity, mission representative cyberspace environments
- Facilitate the integration of the cyberspace T&E infrastructure through partnerships with key stakeholders across DoD, DHS, industry, and academia



Test & Training as a Service

Event design & execution, instrumentation development & deployment, data analysis & results reporting, red teaming, custom traffic generation

Platform as a Service (Upper Tier)

Complex network enclaves, enterprise/internet level services, complex networking and routing

Platform as a Service (Lower Tier)

OS, end-point services and applications, simple networking

Secure Infrastructure as a Service

Computing, networking, storage (virtual and physical), security architecture

NCR was envisioned as a national cyber T&E asset whose services accelerate development of world-class offensive and defensive cyber capabilities for the U.S.

- **Starting range operations in 2012 there were**
 - Few customers requesting events
 - Perceptions that NCR was only capable of handling “commercial, information technology systems”
 - Lots of uncertainty in the community about whether “external cyber ranges” can add value and be trusted
 - No proven processes on how to schedule and use the range
 - High expectations from OSD and DOT&E who were providing the funding that NCR would make a significant impact

Willing customer engagement for cyber testing and cyber training events had to be developed to achieve the impact envisioned for the NCR

- **Help the customer articulate their real problems**
 - What keeps you up at night?
 - What questions do you wish you had the answer to?
- **Own the problem as if it was our problem**
 - Worry about how to deliver the end-value from the very beginning of the engagement
 - Ask “what would I want someone to do for me?”
- **Push ourselves to exceed the customers expectations**
 - Of the value they get, of technical challenges we can overcome, of the tenacity and effort we put into delivering them value

- **Trained and monitored our Lockheed and TRMC teams how to engage customers in ways that develop trust**
 - Mindfulness of their needs & constraints
 - Techniques to shape expectations collaboratively and constructively
 - Templates for reports and briefings that focus on value from the events
- **Assumed customers are “as smart as us” and took on the role of teaching as well as doing**
 - Empowered them to do more on their own and better understand how much we were doing for them
- **Ask for, accept and act on feedback from event customers**
 - Written and verbal feedback from every event
 - Discussions focus on what to do better next time

- **Demand has grown every year**
 - 25 events in 2014, 47 in 2015, 75 in 2016
 - FY17 calendar is filling up rapidly
 - Now, much of our new demand is generated by our customers marketing us to their colleagues
- **Every customer has returned for follow-on events, willingly and with enthusiasm**
 - Customers ask us how we can do more for them, they want more time and more service without us asking them
 - The discussion switches from “the NCR event” to “our event at the NCR” near the end of the first event
- **The willingness we developed brings many other 2nd order effects**
 - Customers are reusing NCR processes and methods in their local cyber T&E teams
 - This helps them effectively and more rapidly meet the goals of new policy from OSD and DOT&E to deliver systems that are mission resilient to cyber threats

The “willingness we developed” is enabling NCR to server broader roles such as helping the broader cyber T&E develop their own best practices for cyber testing and training