INSTALLATION NEXT

HAWAII - RESILIENCE

SYMPOSIUM REPORT

MESSAGE FROM THE COMMANDER, MARINE CORPS INSTALLATIONS COMMAND

Installation neXt attendees,

I would personally like to take this opportunity to thank each of you for your exceptional participation in Installation neXt Hawaii, held aboard Marine Corps Base Hawaii. The work that you have put into this event in support of Installation werX and Marine Corps Installations Command (MCICOM) is invaluable to the future of our Marine Corps installations.

In an increasingly fast-changing and interconnected world, fostering resilience to withstand unexpected events is becoming more important.

Resilience is complex. The shocks and stresses that installations face manifest in different ways, and the concept of resilience is an evolving and moving target. Regardless of the nature of the threat - cyber, natural, or manmade - the fact of the matter is that there is an urgent need to build and maintain resilience now.

As the Commander for MCICOM, it is my task to ensure the adaptability and viability of resilience programs to enhance the operational readiness and to improve Marine Corps installations. Events such as these create opportunities to exchange information and ideas, in order to identify and disseminate good practices and develop innovative solutions to help us create the next generation of our installations.

I know that through these efforts put forth at Installation neXt Hawaii, we will enhance our ability to generate and sustain combat power through new and emerging technologies and processes that will continue to help us develop as a command.

Thank you again for your participation. I know all of you have been instrumental in assisting us in enhancing our installations around the globe.

I look forward to seeing you all at Installation neXt Mobility!

Semper Fidelis,

Vincent G. Coglianese
Major General, U.S. Marine Corps
Commander, Marine Corps Installations Command
Asst. Commandant, Installations & Logistics (Facilities)

MARINE CORPS INSTALLATIONS COMMAND

INSTALLATION NEXT HAWAII - RESILIENCE SYMPOSIUM REPORT

MCB HAWAII // 29-31 JANUARY 2019

CONTENTS

"WE OWE IT TO THE NATION AND WE OWE IT TO THE PUBLIC, BECAUSE WE'RE PART OF THE COMMUNITY."

MAJOR GENERAL VINCENT COGLIANESE, COMMANDER MCICOM

Congress of the United States
A MESSAGE FROM
U.S. REPRESENTATIVE TULSI GABBARD
IN RECOGNITION OF THE
MARINE CORPS BASE HAWAI'I
INSTALLATION NEXT SYMPOSIUM

Aloha kākou!

Thank you for the honor and privilege of sharing a special message in recognition of the Marine Corps Hawaii's Installation neXt Symposium where the readiness and resiliency of our armed forces is recognized as a critical component in defending our country's national security.

Now more than ever, there is an increasing demand for having access to the most up-to-date security and technological advances that will allow for perseverance in the face of any emergency. However, this mission comes with its unique set of challenges. The location of Hawaii's military efforts are also unique given its isolation from the contiguous states; creating a completely independent and critical infrastructure with limited surrounding resources in any time of need. The Installation neXt operating concept will promote innovation; building upon ideas that will address these challenges, and delve into future potential advances in combat power. Therefore, the Marine Corps Base Hawai`i is committed to promoting and actively supporting self-reliance and timely recovery efforts as necessary.

Mahalo nui loa to the Commander of the Marine Corps Installations Command Vincent Coglianese, military officials, experts, industry partners, innovators, government associations, and the many organizers for creating an opportunity to gather, explore, develop, and discuss opportunities for advancement in the field of security and technology. Your experience, expertise, and contributions will undoubtedly leave an indelible impression in defending our country. Ho'omaika'i and best wishes as you continue your unwavering commitment in making our military forces the top in the world!

Me ke aloha pumehana,

Tulsi Gabbard

Congresswoman Tulsi Gabbard
Serving the People of Hawaii's 2nd District

Presented on this 29th day of January 2019

THANK YOU
TO OUR FOUNDATIONAL PARTNERS!

ASU
ARIZONA STATE UNIVERSITY

EY Building a better working world

MD5

Booz | Allen | Hamilton

THANK YOU MARINE CORPS BASE HAWAII!

We would like to thank our host, Marine Corps Base Hawaii, for their continuous support of Installation neXt Hawaii. We would especially like to thank Colonel Lianez and the entire Marine Corps Base Hawaii Staff including all S-shops and Command Deck, Amy Bevan, CWO3 Michael Kropiewnicki and the entire CommStrat team, Marine Corps Community Services staff, MCBH Education Center staff, PMO staff, MCBH Officer's Club, and the Five Palms Hotel.

INSTALLATION NEXT OVERVIEW

From 29-31 January 2019, Installation werX (I-werX), a supporting branch to MCICOM Office of Modernization and Development (G-7), hosted Installation neXt Hawaii, focused on installation resilience. Stakeholders from large and non-traditional defense firms, academia, non-profit organizations, cities, agencies, governments and members of Congress were brought together to leverage attendee expertise and experience in order to explore ways installations can stay mission operable off of the grid for at least 14 days.

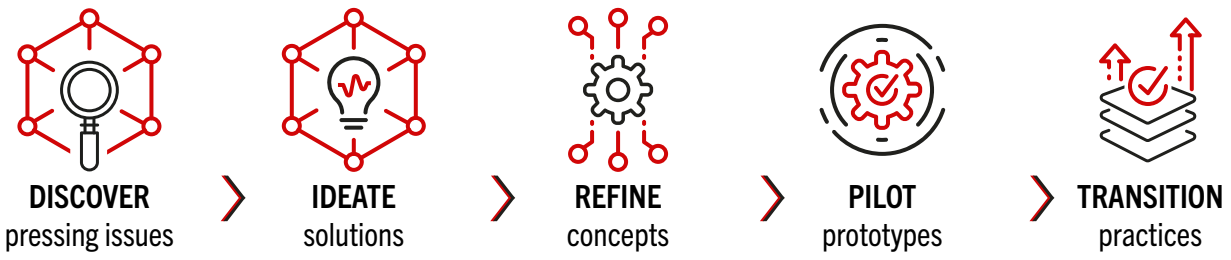
INSTALLATION NEXT

Installation neXt Hawaii focused on the ability of all Marine Corps installations to be resilient and persevere in the face of an emergency, and continue their core mission of generating combat power despite daunting and emerging challenges.

This symposium report is intended to capture the results of the event and provide insights for the future guidance for I-werX and MCICOM initiatives. This document will serve as a baseline to support the development of an Installation neXt operating concept. It also compiles input provided by attendees through an event feedback forms, as well as facilitator feedback, to garner overall successes and lessons learned.

Colonel Lianez, Commanding Officer of Marine Corps Base Hawaii, welcomes Installation neXt Hawaii attendees. (U.S. Marine Corps photo by Cpl. Matthew Kirk)

INSTALLATION WERX SOLUTIONS PROCESS



INSTALLATION NEXT VECTORS

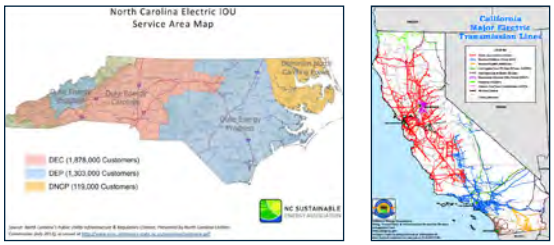
Marine Corps installations are integral to the readiness and resilience of our force, as well as the security of the Nation, but they are outdated and require modernization. Our next generation Marine Air Ground Task Force (MAGTF) requires next generation installations. Installation neXt leverages the power of ideas to imagine and re-imagine bases of the future.

These vectors, shown above, highlight the eight challenge areas of Marine Corps installations. Installation neXt Symposiums are incubators for idea generation and concept development that lead to solutions to these challenges.

RESILIENCE VECTOR

Problem Statement: Marine Corps installations lack the ability to take a punch, stay standing, and counter-punch.

Goal: Independently sustain military operations for 14 days.



Our installations are primarily supported by local/ regional utility providers, and rely on outdated energy grids and fragile distribution systems.

Advances in production, metering, and waste management will reduce energy and water-related vulnerabilities

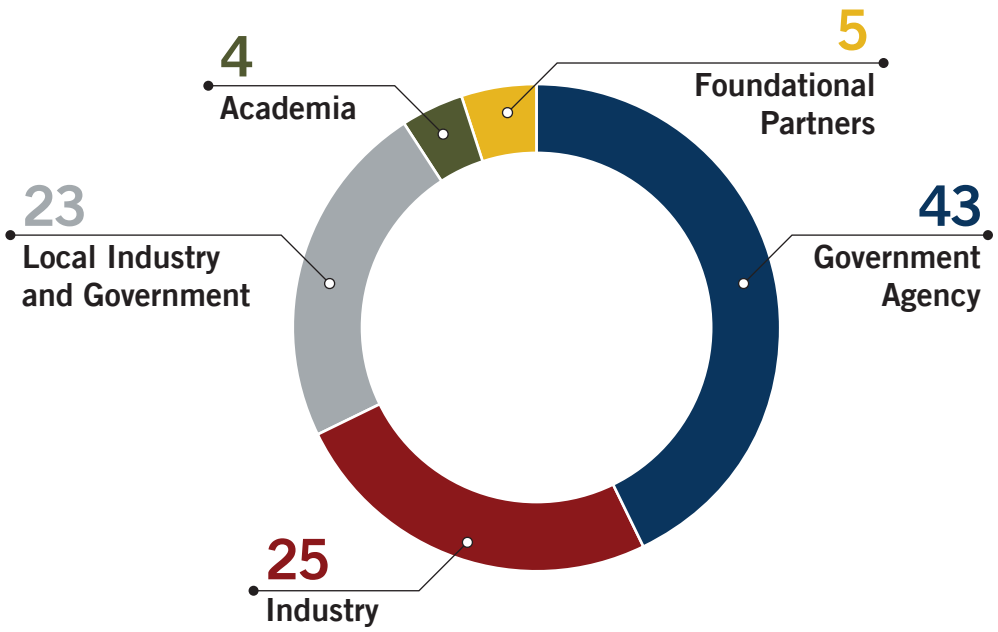
WORKING GROUPS OVERVIEW

FACILITATORS

The working groups were facilitated by a combination of Arizona State University staff, Ernst & Young facilitators, and Booz Allen Hamilton, along with MCICOM subject matter experts.

PARTICIPANTS

A breakdown of participants is highlighted in the chart.

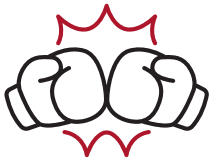


PROCESS OVERVIEW

Over the course of the event, groups worked towards finding new and innovative solutions for each of our five focus areas: **Energy**, **Water**, **Food Distribution**, **Logistical Mobility**, and **Communications**.

Groups imagined a full range of scenarios, related to taking a punch, to help frame their solutions. These solutions focus on Marine Corps Base Hawaii being able to stay standing in the face of an attack, whether natural or man-made, and being able to punch back, as we generate and sustain combat power.

Brian Long with Naval Facilities Engineering Command at the Engineering and Expeditionary Warfare Center, Port Hueneme, California, presents his notes during the symposium. (U.S. Marine Corps photo by Sgt. Alex Kouns)



TAKE A PUNCH

Being impaired by a man-made or natural attack; this defines the origin of the punch as well as what threats and situation it puts us in

STAY STANDING

Being able to deliver the mission imperative operations and keep personnel alive when the installation is impaired; think immediate reaction

PUNCH BACK

Going beyond that immediate reaction to how the installation will react to the adversary or will support operations within and beyond the installation boundaries; think proactive but still within 14 days of the punch

Participants in the Installation NeXt Hawaii-Resilience symposium come together to identify potential threats and shortcomings, then discover innovative solutions to them. (U.S. Marine Corps photo by Sgt. Alex Kouns)

Five simultaneous working groups were conducted in an effort to leverage subject matter expertise, ellicit creative thinking, and identify ambitious, cost-effective, and valuable priorities for Marine Corps Base Hawaii specifically, and all Marine Corps installations at large. Installation neXt Hawaii facilitators utilized innovative techniques to help participants identify, refine, and present a solution for Resilience – one of MCICOM's eight Installation neXt vectors.

WORKING GROUP SOLUTIONS

ENERGY STAY STANDING: POWER PLATFORM – "DIVENERGY"

Problem Statement: MCBH needs flexible energy systems in order to allow for multiple solutions should one be compromised.

Solution Overview: Implement a power platform to utilize multiple energy resources and distribute energy to critical infrastructure using advanced distributed controls.

The solution should be plug-and-play, much like how a USB drive automatically installs drivers to be recognized and used. The power platform will contain the control system and tools required to enable communication and interconnection of existing locally and off-site energy resources.

In addition, the advanced control system will be capable of distributing energy to base facilities. In the event of a disaster, the controls combined with infrastructure switch gear will island infrastructure critical to the MCBH mission and drop non-critical base loads (i.e., Base Theater).

Next Steps:

- Analyze Current State: Conduct study to expose vulnerabilities, evaluate existing capabilities of MCBH, existing commercial off-the-shelf (COTS) and government of-the-shelf (GOTS) technology, and technology research. Results will be used to create a narrative to gather the support of stakeholders and the Command.
- Create an Action Plan: Prioritize MCBH mission objectives and facilities. Reference EMIG and UMIG for date.
- Implementation: Locate diverse types of funding for research, implementation, and leverage activities by other organizations to further effort.

Impact:

- Operational Capability:
  - Impact measured in number of facilities connected and number of kWh generated/needed
  - Quantitative risk reduction
  - Open architecture for plug-and-play system
- Mission: Response time to threats reduced (natural, cyber, & kinetic), isolation of critical assets to reduce energy demand
- Financial: Revenue stream from community and grid participation to provide value during normal operations

ENERGY PUNCH BACK: HYBRID GRID – "HYGRID"

Problem Statement: MCBH needs resilient critical energy infrastructure that removes and reduces vulnerability created by a single point of failure.

Solution Overview: Create flexible and scalable energy infrastructure that can be mobilized and reconfigured to meet changing situational requirements.

The HyGrid system will integrate mobile assets with existing infrastructure to provide additional support to the network. Connection to these mobile assets will be enabled through universal external hook ups on critical buildings. The system will have the ability to seamlessly add and remove components to the grid. A Supervisory Control and Data Acquisition (SCADA) system will enable control over the network through automated switches. Mobile generation sources that can be connected to the network include:

- Large vehicles (EV, Hydrogen, etc.)
- Small wind and solar
- Barges containing batteries and fuel cells

Further, the distribution system can be easily modified (e.g., reconfigured or stripped) to meet changing needs. For example, taking an undamaged distribution transformer from a non-critical building and replacing a damaged transformer on a building with critical loads.

Next Steps:

- Analyze Current State: Perform gap analysis to determine points of failure, load analysis to identify critical and non-critical loads
- Innovation: Complete contract for R&D, firm up requirements, activate partnerships & agreements, find (or develop) standardized hardware for universal power adapter technology, find or develop controls software

Impact:

- Instantaneous response to loss of utility
- Valuable for both minor and major emergency events
- Reduction in system downtime following emergency events

WATER STAY STANDING: RAPID DEPLOYMENT OF REDUNDANT WATER SUPPLY AND STORAGE

Problem Statement: MCBH needs to understand and mitigate single point failures for producing and distributing potable water.

Solution Overview:

- PART I: Diversifying supply
  - Diversification of permanent sources via rainwater capture, reverse osmosis/desalination, wells, water buffalos, and holding ponds
  - Deployment of modular, mobile systems such as water barges identify assets of other nearby bases, renewable energy and battery, and filtration
- PART II: Securing supply by, for example installing, backflow preventers and dedicated backup generators at pumping stations

Next Steps:

- Select a locations, gather data and begin the rapid prototype of the modular mobile system
- Evaluate feasibility and select retrofit or rapid prototyping
- Test the rapid prototype
- Model and asses the combined capability
- Perform a Red Team and determine the level of resiliency
- Full scale implementation across critical assets
- Report on the full scale implementation

Impact:

- Self-sustaining in terms of energy
- Mitigate single sources of failure

Notes organizing the thoughts and ideas of participants in the symposium cling to a white board. (U.S. Marine Corps photo by Sgt. Alex Kouns)

WATER PUNCH BACK: EVERY DROP ENGINEERED

Problem Statement: MCBH needs to create an environment where every drop is engineered in the face of multiple hazards and risks, sources are diverse and secure, with adaptive processes, learning from our failures, in order to provide mission assurance and the ability to project force.

Solution Overview: In order to diversify and secure sources under conditions of a worst case scenario, we propose building the capacity to harness every available water source. Utilize the natural and existing resources of the island to the maximum extent possible. These may include rainwater, gray water, waste water, ocean water and humidity.

We propose a construction plan where all new buildings are water positive, and a selective retrofit plan to bring critical infrastructure water positive. Redirect topography to incorporate natural water capture areas, including sculpting the golf course with water capture ponds, terracing hills for runoff collection. Incorporate treatment facilities near retention areas. Add larger-scale reverse osmosis (RO) at West Field. Provide rain water retention capability and building RO at every residence. Upgrade existing piping with a distribution network that eliminates single-point of failures. Add detection capability to secure and re-route the distribution as needed to mitigate an event. Redirect gray water for non-potable application. Plant native vegetation to minimize the need for landscape irrigation. Identify critical needs and create SOPs that incorporate planning, preparation, and training for water usage for emergency scenarios.

Encourage 21-day supply of water in each home, with training on use of alternative water sources such as pools, rainwater collection barrels, hot water heaters.

Next Steps:

- Assess storage capacity
- Assess critical load demands
- Develop SOP for prioritizing water delivery and conservation

Impact:

- Diverse sources of water supply in different locations with treatment nearby
- Self-sustaining in terms of energy
- Ensure existing water at time of event is preserved and can be delivered to areas of need
- Secure water supply to maintain operational capacity

FOOD DISTRIBUTION STAY STANDING: FOOD SELF-SUFFICIENCY

Problem Statement: MCBH requires the capability to store, manage and distribute food to remain mission capable for 14 days.

Solution Overview: Through assessments, planning, training and feedback the solution provides a continuous process MCBH can use to develop resilient actions for addressing the storage, management, and distribution of food.

The four stage approach entails:

1. Assess / Determine Gaps – Define requirements for sustainable food distribution after a significant disruption and identify the gaps in capabilities and resources to meet the requirements
2. Develop Emergency Plan – Define actions and responsibilities necessary to support adequate food distribution after "taking a punch," including stocking the necessary volume of food
3. Integrate & Train – Introduce plan to relevant stakeholders (including operational command) and run periodic drills to test the plan and train stakeholders
4. Debrief & Revise Plan – Review results of drill and update the emergency plan to accommodate insufficient capabilities and changing requirements

Next Steps:

- ↗ Conduct capability assessment & gap analysis
  - Storage capacity
  - Storage & distribution locations
  - On-hand food inventory
- ↗ Create plan to close gaps
- ↗ Communicate the "why" to all stakeholders

Impact:

- ↗ Solution will produce a sustainable, 14-day stockpile of food
- ↗ Preparedness actions provide continuous improvement to the emergency response plan and create opportunities for increasing resilience through the feedback loop
- ↗ Metrics to measure impact include quantity of supply, population served, distribution time reduction, increased storage capacity, etc.

FOOD DISTRIBUTION PUNCH BACK: MEAL REPLACEMENT UNITY

Problem Statement: MCBH requires enhanced capabilities to sustain food supply to the greater base supported community.

Solution Overview: Through a strategic stockpile of meal replacement "units" (whether they be bars, pills, powder, etc.), the solution provides a reliable and ready process for MCBH to provide necessary nutrition for the larger base-supported population without need for emergency sourcing distribution in times of crisis.

The primary elements of the solution include:

- ↗ Ability to feed, at a minimum the base supported community, without significant investment in new
  - Storage capacity- meal replacement units are compact and dense in nutrients and calories, minimizing the need to additional storage capacity
  - Energy- meal replacement units are "shelf-stable" and do not require refrigeration
  - Transportation- because meal replacement units are compact and shelf-stable, they could be stored in smaller quantities distributed across MCBH, rather than in a single point of distribution
- ↗ Local stock & storage would rely on the existing commissary processes for ordering and managing rotation
- ↗ The strategic stockpile could also be backed up in region for broader DoD use, leveraging what FEMA and other partners bring to the table in times of crisis

Next Steps:

- ↗ Define the requirements for necessary nutrients and calories per capita
- ↗ Issue an RFI to identify existing nutrition supplements that act in a similar manner:
- ↗ Short term- existing supplements on the market today that could become immediate stock
- ↗ Longer term- identify labs/food companies willing to invest in R&D for a meal replacement unit
- ↗ Update MCBH policy to allow for stocking this type of food product for this purpose
- ↗ Opening a dialogue with DECA/ DLA on support for meal replacement units for broader application and regional stocking

Impact:

- ↗ Solution will provide a longer term (not limited to 14-days) ability to feed a larger (base-supported) population than is possible with traditional food stores stocked in the joint community
- ↗ This solution would also reduce the pressure on getting nutrition to people in need, allowing for other critical priorities to be dealt with

LOGISTICAL MOBILITY STAY STANDING: TECHNOLOGY ENABLED COMMON OPERATING PICTURE TO ENABLE LOGISTICAL MOBILITY

Problem Statement: To stay standing and maintain logistical mobility in the event of a disaster, MCBH must collaborate with public and private partners to plan, resource, and invest in infrastructure, energy, and data requirements.

Solution Overview: To stay standing and maintain logistic mobility, MCBH will:

- Establish a virtual Command Center, which is able to integrate public and private stakeholder capabilities and information to enable the Common Operating Picture and to transport operational and life support services while continually maintaining viable transportation means and routes
- Develop and share a pre-baseline digital twin or operating model of the base environment to create a pre-event picture and immediate rendering post-event, using drones, sensors, people/Marines with wearable technology, and embedded sensors

Next Steps:

- Kickoff with the key stakeholders
- Pilot/study
- Discussion at next Marine Installation Board & Executive Off Site

Impact:

- Resilience – Organizing logistical resources to provide critical assets when needed
- Force multiplier without the cost – utilizing resources already existing through coordination and planning among stakeholders
- Improved information sharing
- Ability to assess and measure impact, scope and response based on delta from standard

LOGISTICAL MOBILITY PUNCH BACK: LEVERAGING TECHNOLOGY, RESOURCES, AND THE COMMUNITY TO TRANSFORM LOGISTICAL MOBILITY THROUGH CROWDSOURCING

Problem Statement: To punch back, MCBH must leverage partnerships and technology to implement well-informed decisions to support logistical mobility.

Solution Overview: To punch back, MCBH synergizes the best business logistics mobility practices to enable the expeditious delivery of operational supplies and services.

- Establish partnerships with public, private, and DOD stakeholders pre-event to develop best business practices
- Incorporate data analytics to link Common Operating Picture to the operational distributed network
- Allowing the military platform to talk to the public/private platform without cyber security limitations
- Create financial opportunities – what's in it for our partners? They get a broader range of opportunities to expand, we get services and a network

Next Steps:

- Get money to develop idea
- Visit Amazon and Uber
- Identify the "who's going to do this?" – Target Hawaii first
- Develop a network of providers, drivers
- Set up a scenario driven table top exercise
- Set baseline expectations for all parties
- Exercise the concept with scenario-driven training
- Conduct an AAR & refine
- Socialize at next Marine Installation Board & Executive Off Site

Impact:

- Enable cultural and participation norms of the local community (how they convene, help)
- Increase logistics capacity for the base and the community
- Improved resilience through the development of best practices
- Shared, combined capabilities for synergistic effect
- Develop and improve on our relationship with the local community

COMMUNICATIONS STAY STANDING: CHAOS OF MOVING TO A DISTRIBUTED NETWORK

Problem Statement: In order to stay standing, MCBH needs to eliminate data transport single points of failure.

Solution Overview: Eliminate a critical single point of failure for data transfer on the base. Currently there is one fiber carrying out data transfer for the base and that could easily be taken out even by accident. In order to create a redundant system, the base will implement SAT as a backup. In order to test the SAT, the base would perform a true comms out 'chaos' exercise – something that does not currently happen. Instead of following plans, the base would physically turn off comms and rely solely on the SAT backup to create a true test of the system.

Next Steps:

- Research viability of military vs commercial options for the SAT equipment
- Buy-in from base commander and all key partners
- Technical solution would be owned by MCBH S-6
- Feasibility study and cost estimate (and resilience assessment)
- Review studies and reports for area and mission assurance

Impact:

- No more single point of failure for data transport
- Ensures critical bandwidth
- Improves emergency management practices
- Availability of bandwidth during red team is a useful metric for measuring success
- Performing the exercise annually will show impact over time
- Learning more about the user experience during the exercise would have impact
- Measuring minutes per data on air during the exercise is a useful benchmark
- Serves as an opportunity for business to test their own contingency plans

COMMUNICATIONS PUNCH BACK: SMART COMMUNICATIONS ARCHITECTURE OF THE FUTURE

Problem Statement: In order to punch back, MCBH needs to find opportunities through extreme events to modernize existing infrastructure.

Solution Overview: For the communications Punch Back solution, the assumption was made that a catastrophic event leads to an opportunity to start from scratch and create a redundant, mobile, and survivable communications solution. Data storage would be redundant across an underground data center, a 'network on the move' storage center, and a mesh network that uses the storage across a network of mobile devices. Data transport would be enabled by a drone network, utilize self-healing technology, and involve multi medium transport like light and microwaves. To power the system, the communications infrastructure would take advantage of diverse power sources including microgrids and self-generating power. Overall, the system would leverage self-healing, self-forming, and artificial intelligence capabilities that are currently being matured in industry.

Next Steps:

- Buy-in of leadership of concept
- Requirements development and scope out the proof of concept
- Design, bring in partners, iterative process, and validation cycle for all aspects of the technology including mechanical networking and EMP, mobile storage, and distributed storage

Impact:

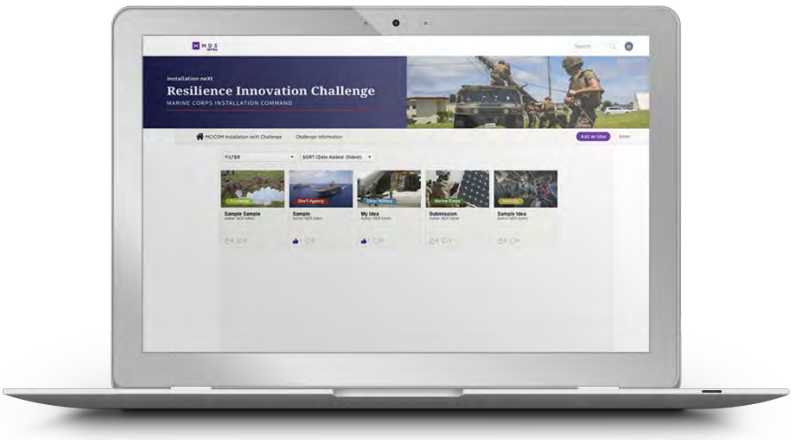
- Multi-threaded
- Creates multiple redundancies
- Hardening
- Self-healing nature
- Improve ability for others to be more resilient with communications as an enabler

MD5

The MCICOM Installation neXt Operating Concept aims to identify, test, and pilot solutions to solve the most pressing problems facing installations. This specifically is looking at how we can create solutions that make our installations more resilient with the increase of man-made and natural threats. We look forward to seeing your solutions as this challenge is a launch pad to identify opportunities to work with the larger ecosystem of industry, academia, military, and more to develop these solutions together. When submitting your solution, you can include as much detail as possible, however, please include at least the following: Solution overview, visual to explain solution, impact to problem, next steps, and how it would expand to all Marine Corps Installations.

WINNER AWARD

As mentioned above, The MCICOM Installation neXt initiative is all about creating a collaborative ecosystem of academia, industry, military, and beyond that work together to create tomorrow's solutions to tomorrow's problems. At the conclusion of this challenge, MCICOM will review all of the solutions to identify which ones are forward thinking, pilotable, and cohesive to a joint project. We see each solution as a winner, but the ones that meet our criteria the most will be selected and notified in April.



https://din.md5.net/usmc/next

Based on the location and participant type, the winners will receive one of the following opportunities to further develop their solution:

- Brief solution concept to MCICOM leadership and explore contracting options for prototyping and piloting solution
- Receive industry or academia sponsorship to continue research and development of the solution
- Be awarded a fellowship through a local or national accelerator program that aims to support DoD and government priorities
- Partner with research & development laboratory to further develop their ideas into reality through prototyping and experimentation

INSTALLATION NEXT MOBILITY
JOIN US 30 APRIL – 2 MAY 2019

From 30 April – 2 May 2019, Installation werX (I-werX), a supporting branch to MCICOM G-7, invites you to attend Installation neXt Mobility (IXM), focused on installation mobility. IXM hopes to leverage attendee expertise and experience and explore options on how Marine Corps Air Station Miramar can enhance the movement of people and goods in and out of the installation.

Event details and registration information to follow.

SPEAKER BIOGRAPHIES

DAY 1 SPEAKERS

Jacque Freeland, Force Protection Director, Marine Corps Base Hawaii

Jacque Freeland has had 24 years aboard MCB Hawaii and 15 years in her current position. Jacque is prior Marine Corps Active Duty and is currently serving as the Installation Protection Program Manager for MCB Hawaii. She is responsible for the planning, preparation, response, and recovery pertaining to Anti-terrorisim, Critical Infrastructure Protection, Continuity of Operations, Defense Support to Civilian Authorities, Emergency Management, and other threat warning programs aboard MCB Hawaii.

Josh Stanbro, Chief Resiliency Officer for the City & County of Honolulu

Josh Stanbro is Honolulu's Chief Resilience Officer, and serves as the Executive Director of the Office of Climate Change, Sustainability and Resiliency. Josh has a deep background in sustainability and brings a track record of developing cross-sector partnerships to his role in Mayor Caldwell's administration. He served as Environment and Sustainability Program Director for the Hawai'i Community Foundation from 2009-2017, where he led the Hawai'i Fresh Water Initiative and the Hawai'i Environmental Funders Group. Prior to HCF, Josh headed The Trust for Public Land's Hawai'i Office, where he worked with local communities to permanently protect over 25,000 acres and dedicate over $200 million in land conservation funds.

Aki Marceau, Managing Director of Policy & Community, Elemental Excelerator

Aki Marceau is the Managing Director of Policy & Community, Hawai'i & Portfolio Manager for Mobility at Elemental Excelerator, where she oversees Elemental's collaborations with business, government, and education to prime Hawai'i for cleantech innovation. She also manages Elemental's mobility companies. Prior to Elemental Excelerator, Aki served as land use and sustainability manager for the Honolulu Authority for Rapid Transportation (HART) and transportation planner for WSP (formerly Parsons Brinckerhoff). She currently serves as the Chair for the Sustainable Transportation Coalition of Hawai'i and is on the Board of WiRE (Women in Renewable Energy).

"WE'RE AN INSTITUTION MIRED IN BUREAUCRACY AND RED TAPE... [WE] NEED TO MOVE MORE QUICKLY."

COL SCOTT BALDWIN, DEPUTY COMMANDER, MCIEAST

DAY 2 SPEAKERS

Noel Zamot - Revitalization Coordinator, Financial Oversight & Management

Noel Zamot is the Revitalization Coordinator for the Financial Oversight and Management Board (FOMB) for Puerto Rico. He is responsible for bringing private capital to revitalize Puerto Rico's critical infrastructure, setting the conditions for economic growth. He launched the Critical Projects Process under Title V of the PR Oversight, Management and Economic Stability Act (PROMESA) to evaluate and fast-track projects to address the island's critical infrastructure emergency.

Dr. Dan Eisenberg - Research Assistant Professor of Operations Research

Daniel Eisenberg is a Research Assistant Professor in Critical Energy Infrastructure Systems in the Department of Operations Research at the Naval Postgraduate School (NPS). He works with the Dr. David Alderson, the Director of the NPS Center for Infrastructure Defense, and Dr. Daniel Nussbaum, the Principal Member of the NPS Energy Academic Group, to coordinate and lead NPS education and research efforts in critical infrastructure resilience.

Jennifer DeCesaro - U.S. Department of Energy

Jennifer DeCesaro serves as a Senior Advisor in the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. Jennifer/she oversees the Energy Transition Initiative which is focused on supporting islands and other isolated communities in increasing their energy resilience through the increased deployment of local energy sources, including actively supporting hurricane and typhoon recovery efforts in the Caribbean and Pacific.

Mick Wasco - Installation Energy Manager, Marine Corps Air Station Miramar

Mick Wasco is the Installation Energy Manager at Marine Corps Air Station (MCAS) Miramar. He is responsible for the installation's energy and water efficiency, renewable, security, and behavior programs. Altogether, he ensures that MCAS Miramar achieves the energy and water requirements mandated by Congress and the President. At MCAS Miramar, the assets managed include over 1.5 MW of distributed PV systems, a 3.2 MW PPA for landfill power, central HVAC control system, advanced metering, a base wide reclaimed water utility network, and smart irrigation controllers.

"SHARED MISERY IS A FORCE MULTIPLIER."

NOEL ZAMOT, FINANCIAL OVERSIGHT AND MANAGEMENT BOARD

DAY 3 SPEAKERS

Col David Jones - Deputy Commander, MCIPAC

Col Jones is a graduate of the Naval Academy and upon completion of The Basic School was assigned the Military Occupational Specialist as a Logistics Officer. He has deployed in support of Operation Iraqi Freedom and Operation Enduring Freedom, and served as the Military Aide to the Vice President of the United States. Col Jones commanded MWSS-371 and under his leadership they were selected as the Marine Wing Squadron of the Year. He has a Master's Degree in National Security Strategic Studies from the National War College. Col Jones is currently serving as the Deputy Commander for MCIPAC.

Col Joseph Williams - Chief of Staff, MCIWEST

Col Williams was commissioned in 1992 and upon completion of The Basic School, reported to Naval Air Station Pensacola, FL in May 1994 and was designated a Naval Aviator in 1996. He has twice deployed as a member of the 13th Marine Expeditionary Unit, and also deployed in support of both Operation Iraqi Freedom and Operation Enduring Freedom. Other assignments include Executive Assistant to the Department of the Navy Assistant for Administration; Senior Military Advisor, Director Operational Test and Evaluation, Office of the Secretary of Defense; and the Director, Commandant of the Marine Corps Safety Division. Colonel Williams is a graduate of; Ithaca College with a B.S. in Business Management, Johns Hopkins University, School of Advanced International Studies, Global Public Policy M.A. program. He is currently the Chief of Staff for Marine Corps Installations West-Marine Corps Base, Camp Pendleton.

Col Scott Baldwin - Deputy Commander, MCIEAST

Col Baldwin is a graduate of Oregon State University and upon completion of The Basic School was assigned the military occupational specialty of a Combat Engineer. He has deployed multiple times in support of Operation Iraqi Freedom and Operation Enduring Freedom. Col Baldwin spent some time at MARFORPAC as the G-4 Force Engineer Branch Head, and was the Commanding Officer of 9th ESB in Okinawa, Japan. He has a Master's Degree in Strategic Studies from the College of Naval Warfare, and is currently serving as the Deputy Commander for MCIEAST at Marine Corps Base Camp Lejeune.

"WE NEED TO BE CLEAR-EYED ABOUT THE RISKS THE ISLAND COMMUNITY FACES."

JOSH STANBRO, 100 RESILIENT CITIES

INSTALLATION WERX TEAM

NAME	ORGANIZATION
Colonel Che Bolden	MCICOM, Installation werX
Captain Jessica O'Reilly	MCICOM, Installation werX
Amanda Huntley	MCICOM, Installation werX/ Booz Allen Hamilton
Nicole Lach	MCICOM, Installation werX/ Booz Allen Hamilton
Kaitlynn Mosier	MCICOM, Installation werX/ Booz Allen Hamilton

ENERGY WORKING GROUP

NAME	ORGANIZATION
Nathan Johnson	**Facilitator, Arizona State University**
Samantha Janko	**Facilitator, Arizona State University**
Joe Sanchez	**Facilitator, Arizona State University**
Byan Ayers	MCIEAST G7
Ronald Cox	Hawaiian Electric Company
Jennifer DeCesaro	Department of Energy
Mitch Ewan	Hawaii Natural Energy Institute
Harry Farmer	Marine Corps Base Hawaii
Sterling Gascon	Blue Planet Energy Systems, LLC.
Dale Hahn	Senator Shatz Office
Lori Kahikina	City & County of Honolulu
Russel Koehler	Cintel, Inc.
Lily Koo	Hawaii Energy/Leidos Engineering
Bryan Long	US Navy, NAVFAC
Sandy MacMurtrie	Johnson Controls Federal Systems
Major David Merles	Marine Corps Base Hawaii
Tiffany Patrick	Marine Corps Base Hawaii
Don Proebstel	Natural Power Concepts Inc.
Sonny Rasay	Marine Corps, Public Works
Richard Racheleau	Hawaii Natural Energy Institute/ Univ. of Hawaii
Art Rubio	SSC Pacific
Kayla Saundrs	USINDOPACOM
Kym Sparlin	Hawaii State Energy Office
Michael Syskal	Marine Corps Base Hawaii
Jen Tetatzin	CTC/MCICOM GF-1
Jason Virskus	Ameresco, Inc.
Mick Wasco	MCIWEST
Ben Widmer	Blue Planet Energy Systems, LLC.
Susan Wolters	USACE ERDC
Master Gunny Sgt Lewis Wooden	Camp Smith

WATER WORKING GROUP

NAME	ORGANIZATION
Emily Bondank	**Facilitator, Arizona State University**
Mike Chester	**Facilitator, Arizona State University**
Tom Lyons	**Facilitator, Arizona State University**
Marissa Brand	SSC Pacific
James Brown	Garrison Hawaii
CWO3 Angelo Genova	Marine Corps Base Hawaii
Mark Glick	Hawaii Natural Energy Institute
Troy Gonzalez	Booz Allen Hamilton
Michael Harada	US Army Installation Management Command
Brandon Hayashi	ENGIE
Lia Hunt	Goldwings Supply Service
WO Abraham Lewis	Marine Corps Base Hawaii
Gregg Nakano	University of Hawaii
Jack Shriver	Hawaiian Electric Company
Tim Tetreault	OSD
David Thomas	Arizona State University
Claudine Tomasa	Kailua Neighborhood Board #31
Tom Uncles	USA IMCOM Pacific
Victor Varvla	Marine Corps Base Hawaii
Rumanda Young	USACE ERDC

FOOD DISTRIBUTION WORKING GROUP

NAME	ORGANIZATION
Bradley Hall	**Facilitator, Ernst & Young**
Kevin Hogan	**Facilitator, Ernst & Young**
Lisa Wade	**Facilitator, Ernst & Young**
Colonel David Jones	Deputy Commander, MCIPAC
Colonel Eric Hamstra	AC/S, G 3/5
Michael Buelsing	Pacific Marine & Supply
Juyeong Choi	FAMU - Florida State University College of Engineering
Jacque Freeland	Marine Corps Base Hawaii
Bob Isler	Hawaiian Electric Company
William Johnson	IMCOM-Pacific
Patrick Mau	DISA
James McCay	Ameresco, Inc.
John Miller	Hawaii Unified
Christopher Nakamoto	Hawaiian Electric Company
Curtis Punderson	NAVFAC PAC
Rita Smith	Marine Corps Base Hawaii
Pete Swainson	Marine Corps Base Hawaii
Jack Templeton	Naval Post Graduate School
Kurt Tsue	Hawaiian Electric Company
Joseph Williams	MCIWEST

LOGISTICAL MOBILITY WORKING GROUP

NAME	ORGANIZATION
LtCol Brandon Newell	**Facilitator, MCICOM I-werX**
Laura Michael	**Booz Allen Hamilton**
Colonel Sekou Karega	Camp Mujuk/MCIPAC
Colonel Al Trimble	Marine Corps Logistics Base Albany
Colonel Scott Baldwin	MCIEAST
Timothy Boring	MCHQ I&L, MCICOM
Ivan Cavenall	Marine Corps Activity Guam
Rodney Chong	Hawaiian Electric Company
Diana Cooper	PrecisionHawk, Inc
Ethan Creps	Matson Navigation
Lance Iwami	Marine Corps Base Hawaii
Rachel James	HCATT
Robert Pedigo	MARFORPAC
Lori Ann Saunders	Blue Planet Energy Systems, LLC.
Glady Singh	PrecisionHawk, Inc
Leonard Supko	MCIPAC
Whitney Tallarico	ATSI
Major William Trapp	Marine Corps Base Hawaii
Nestor Tumulac	Marine Corps Base Hawaii
Troy Vigil	Johson Controls Federal Systems

COMMUNICATIONS WORKING GROUP

NAME	ORGANIZATION
Kaitlynn Mosier	**Facilitator, Booz Allen Hamilton**
John Scholl	**Facilitator, Marine Corps Logistics Base Albany**
William Aiu	AT&T
Karthik Bharat	MCICOM/ GF
Jason Dorvee	USACE-ERDC-CERL
Daniel Eisenberg	Naval Post Graduate School
Clement Jung	Ameateur Radio Emergency Service
Vince Krog	State of Hawaii
Gregg Murphy	Blue Planet Energy Systems, LLC.
Ann Nagel	Booz Allen Hamilton
Svetlana OMalley	MCICOM/ GF-1
Michael Rauseo	Redhorse Corporation
Darrell Rawlins	AT&T
William Roy II	MCICOM G6
Corey Shaffer	Verizon Wireless
Girair Simon	Booz Allen Hamilton
William Smith	Marine Corps Base Hawaii
Rae Uyehara	AT&T
Garet Yoshimura	Marine Corps Base Hawaii
Joseph Williams	MCIWEST