

## LNRA: LINQUEST NETWORK RESILIENCE ALGORITHMS

LinQuest has developed advanced, novel, and patent-pending Machine Learning algorithms to enable resilient operation of large-scale communication networks via alternative network pathways during Radio Frequency (RF) jamming, spectrum congestion, or cyber attack.

## EFFECTIVENESS OF CURRENT RESILIENCE APPROACHES IS LIMITED

- Manually intensive, costly, and prone to error
- Unable to dynamically predict attacks and employ anticipatory defenses
- Focused on connecting disparate networks for alternative pathways but without dynamic routing

## SIGNIFICANT NETWORK RESILIENCE IMPROVEMENTS

- Overcomes (prevents) total network throughput (bits/sec) losses of up to 60% caused by the attack relative to network throughput during the un-attacked, nominal operating state (Global Optimizer)
- Improves degraded total network throughput (sum of all Tx/Rx pairs) by up to 40% relative to selecting alternate routing paths randomly (Distributed Optimizer)



# NETWORK RESILIENCE

## ENSURING DATA DELIVERY



## FEATURES

LinQuest's Network Resilience Algorithms:

- Are encapsulated in software code that can be deployed within a networked system - at either the node level or a centralized compute location
- Constantly monitor network nodes and links for congestion, quality, performance, cost, jamming, and other attributes
- Detect performance degradation within a link, then re-route the data to links that are not affected to provide assured delivery of data from a source to a target
- Recommend network configurations to optimize resilience
- Analyze, characterize, and predict adversary attacks using AI/ML techniques even if adversary attacks are AI/ML-driven
- Can be implemented on emulated custom networks in a Resiliency Test Bed within LinQuest's state-of-the-art LinQlab

## BENEFITS

- Optimized network performance in real-time while under disruption or attack
- Faster resumption of full network capacity after disruption/attack
- Reduced cost of response to disruption/attack through automated recovery
- Broad applicability across network acquisition and operations phases

Learn more at:

[www.linquest.com](http://www.linquest.com)

Contact us at:

[marketing@linquest.com](mailto:marketing@linquest.com)