ARANACULUS

Autonomous intelligent Reconfiguration

("Self-Driving") for Heterogeneous Wireless Networks™

NASA Funded Resilient Wireless Software

Reduces OPEX with Zero Touch Operation

Ensures Network Uptime and Performance

Meets SLA Requirements

Detection Time

Classification Time

Mitigation Time

SLA Fines

Autonomy

Manual Cost

Without AiRANACULUS

Hours

Days

Months

High

Low

High

With AiRANACULUS

Seconds

Seconds

Seconds

Low

High

Low

AIRANACULUS® Interference / Anomaly Detection & Characterization

Automates Interference Awareness Real-Time

Detects Spectrum Anomalies

Characterizes 50+ Signal Types

Classifies Interference Types Automates
Interference Mitigation

Signal Processing

Channelization & Detection

Statistical & Feature Extraction



Machine Learning

Interference Characterization Signal on Signal Anomaly Detection



- . RU (eCPRI)
- 2. External Radio



Signal Processing



Machine Learning Models

AIRANACULUS® Robust & Resilient 5G

Integrated Interference & Congestion Mitigation into 5G Systems



Detects and
Mitigates
Interference
Issues In Seconds



Dynamic Bandwidth Adaptation (DBA)

Autonomously adjusts bandwidth in response to detected interference or congestion



Autonomously Reacts and Reconfigures



Dynamic Power Adaptation (DPA)

Autonomously adjusts power to enable Spectrum Sharing



Dynamic Spectrum Access (DSA)

Autonomously detects interference & congestion and relocates







Example Integration with O-RAN System

Interference / Anomaly Detection & Characterization

ACR xApp & rApp