Exploring the OAIC platform and the Secure Slicing xApp

Faculty Mentor: Professor Junaid Farooq
Student: Jawad Hazime
CECS, University of Michigan-Dearborn

SURE EXP+ Undergraduate Research

INTRODUCTION

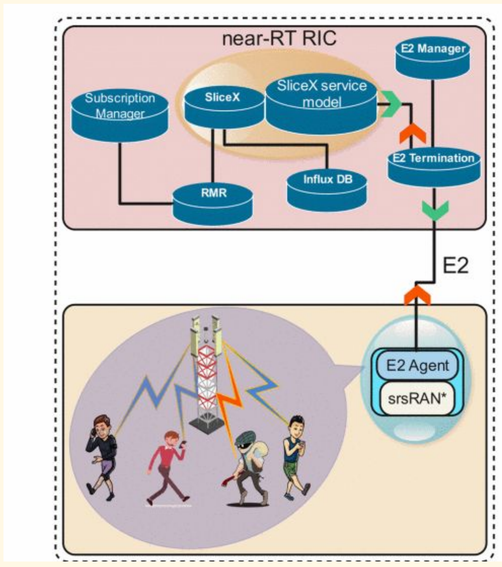
- Cellular network infrastructures are seeing a trend towards **open sourcing** and **virtualization**
- This shift brings new **vulnerabilities** to these networks
- Open source applications have been developed to mitigate these threats using a zero trust approach known as **ZTRAN** (Zero Trust Radio Area Network)
- The focus for this project is the secure slicing feature, which **dynamically protects** network resources from malicious users

PURPOSE STATEMENT

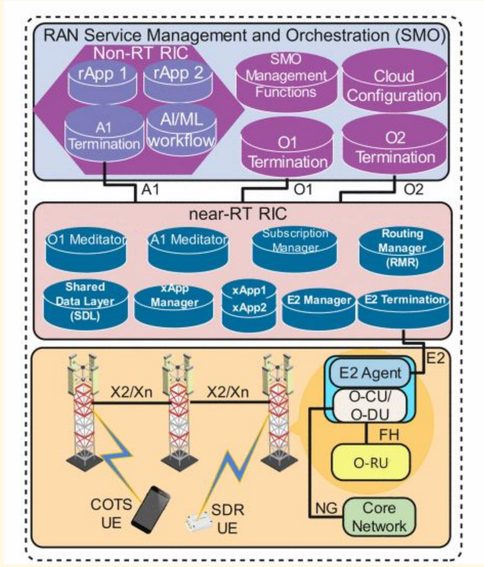
The **purpose** of this study is to explore the **OAIC** (Open AI Cellular) platform and work towards an on-campus test bed for the internal development of network applications by experimenting with the Secure Slicing xApp

APPROACH

- **Reviewed publications** from SSxApp developers to better understand the underlying principles and to create a set of expectations for the test
- Proceeded with **5G network emulation** procedure defined by OAIC's documentation on a local Ubuntu machine
- Exported app logs from the CLI and performed **post-processing** using Python for further analysis



[1]



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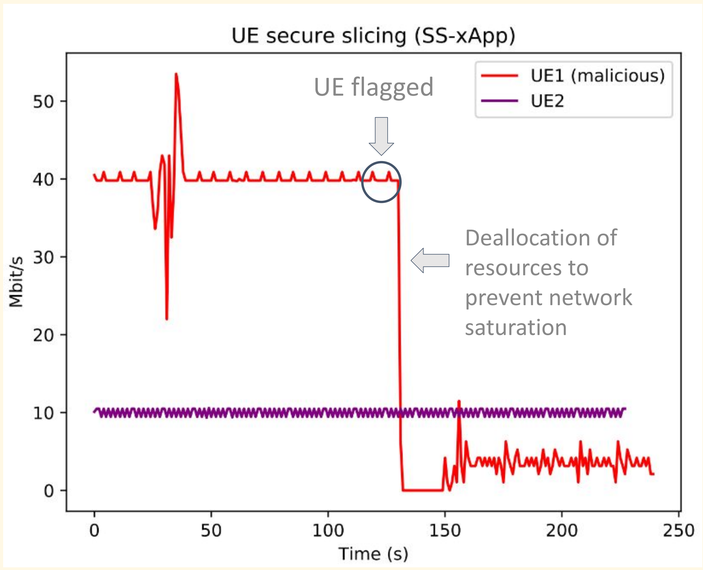
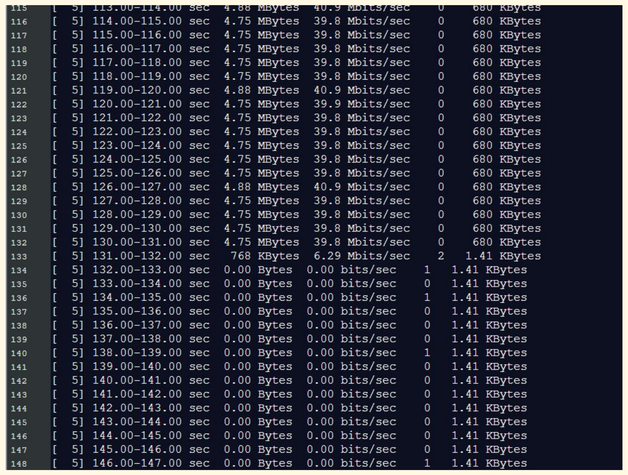
RESULTS





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SKILL : TECHNOLOGY

- Utilized AI tools such as ChatGPT to assist with understanding unfamiliar terminologies/concepts and for quickly structuring small test scripts

CONCLUSIONS

- The open sourcing of cellular network development provides a new dimension of technological progress
- As the developers of these applications point out, future improvement is to be made to these features through the implementation of machine learning algorithms

WORKS CITED

1. J. Moore, N. Adhikari, A. S. Abdalla and V. Marojevic, "Toward Secure and Efficient O-RAN Deployments: Secure Slicing xApp Use Case," 2023 IEEE Future Networks World Forum (FNWF), Baltimore, MD, USA, 2023, pp. 1-6, doi: 10.1109/FNWF58287.2023.10520548.
2. Abdalla, A. S., Moore, J., Adhikari, N., & Marojevic, V. (n.d.). *Toward Secure and Efficient O-RAN Deployments: Secure Slicing xApp Use Case*. Arvix.org. https://arxiv.org/pdf/2403.04113