

Requirements

Functional Requirements

Data Ingestion

- The system will allow users to upload PCAP/PCANG files

Data Processing

- The system will parse raw packets and extract information such as source/destination IP addresses, ports, transport protocols and timestamps,
- The system will calculate metrics such as packets per flow, average packet size, average protocol type.

Visualisation Dashboard

- The system will present data via an interactive dashboard which will display all data processing outputs.
- The dashboard will allow filtering and sorting

Machine Learning

- The finished system will deploy a lightweight machine learning model to classify user activities such as browsing & streaming.
- The system will display predicted user activities.

Non-functional requirements

Performance

- The system shall process PCAP files of up to 500MB within 2 minutes.
- The system will be designed to only achieve performance metrics for one concurrent user per host.

Documentation

- User documentation will include annotated screenshots

Maintainability

- The system will be built with modular components where possible to enable future updates.
- The system will store configuration parameters in editable files.

Accessibility

- The system will meet WCAG 2.2 AA accessibility requirements.

Usability

- The system's interface will be intuitive and accessible to users without a networking background,
- The interface will use non-technical terminology,
- Users should be able to complete a basic analysis task in under 5 minutes,
- The UI will maintain consistent layout colours.

Portability

- The application will run on major operating systems such as Windows, macOS and Linux.

Reliability

- The system will handle corrupted or incomplete PCAP files.
- The system will be hosted by the user, so uptime of the dashboard is not considered.

Interoperability Requirements

- The system will not provide a service to any pre-existing system.
- The system will support encrypted traffic at metadata level only.
- The system may integrate with standard open-source libraries.