

GOALS

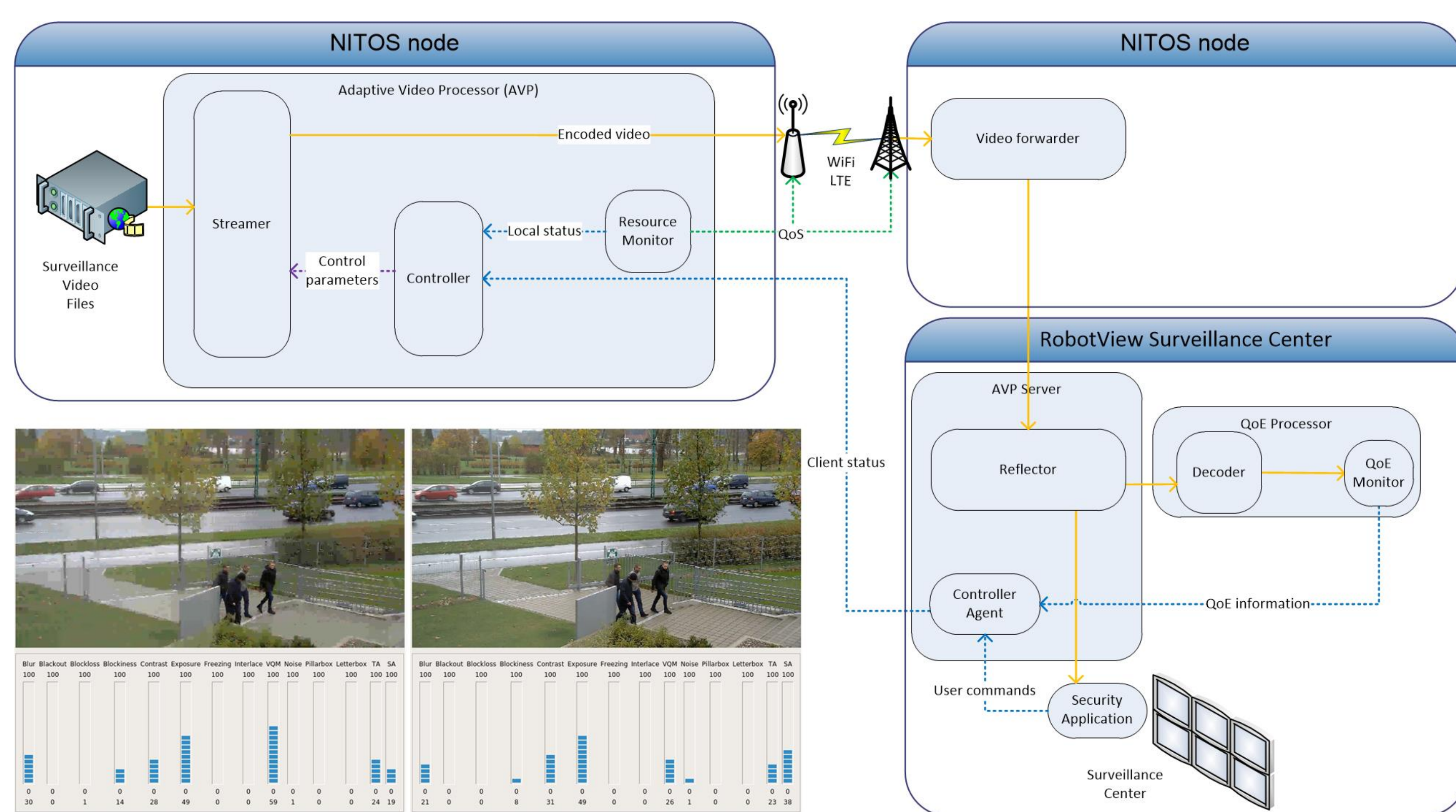
- Validate predefined encoding and transmission profiles
- Test QoE degradation in wireless networks
- Find correlation between QoS and QoE
- Fine tune encoding and transmission profiles

CHALLENGES

- Access to reliable testing environment
- Access to heterogeneous network testbed (WiFi and LTE)
- Measure QoE and QoS in parallel

DEMO SETUP

NITOS testbed



RESULTS

WiFi

- For the lower TX power (20 mW), the QoE results ranged from very bad to poor regardless of the values of other parameters (bitrate, MCS index, antenna configuration)
- When transmitting at top available power of 100mW, close side traffic at 30mW is not a concern for our use case

LTE

- significant issues only with a combination of eNodeB TX power set at -15dBm and MCS at 0

MORE RESULTS

WiFi

| MCS index | antenna configuration | packet loss rate [%] | QoE metrics value | subjective QoE test |
|-----------|-----------------------|----------------------|-------------------|---------------------|
| 0 | 1x1 | 0,05 | 0,072 | good |
| 3 | 1x1 | 0,02 | 0,054 | excellent |
| 8 | 2x2 | 0,14 | 0,072 | excellent |
| 11 | 2x2 | 0,00 | 0,057 | excellent |
| 16 | 3x3 | 0,44 | 0,073 | excellent |
| 19 | 3x3 | 0,00 | 0,057 | excellent |

LTE

| MCS index | packet loss rate [%] | QoE metrics value | subjective QoE test |
|-----------|----------------------|-------------------|---------------------|
| 0 | 0,05 | 0,072 | good |
| 3 | 0,02 | 0,054 | excellent |
| 8 | 0,14 | 0,072 | excellent |

CONCLUSIONS

- Streams featuring intra refreshed portions of frames instead of whole IDR frames are especially promising
- A sufficient SNR in a WiFi channel is crucial for non-problematic transmission

POST MORTEM

- We have performed extensive testing during the short period of 2 months
- To fine tune the encoding and transmission parameters we need to perform more tests especially using LTE networks
- With the current encoding schemes, we are not satisfied with the QoE results achieved