UNIFIED COMMUNICATION:

WHAT DO DIGITAL ACTIVISTS NEED?

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INTRODUCTION

- UNIFIED COMMUNICATION (UC)
- DIGITAL ACTIVIST
- PARTICIPANTS / QUESTIONNAIRE / ANALYSIS
- IDENTIFIED REQUIREMENTS
- CONCLUSIONS

UNIFIED COMMUNICATION (UC)

- Interactive real-time communication

- Integrating applications across devices

- Presenting a consistent user interface

and many more....

SECURITY AND PRIVACY IN UNIFIED COMMUNICATION

Previous paper already analyzed the security and privacy features of ten widely used and known UC architectures
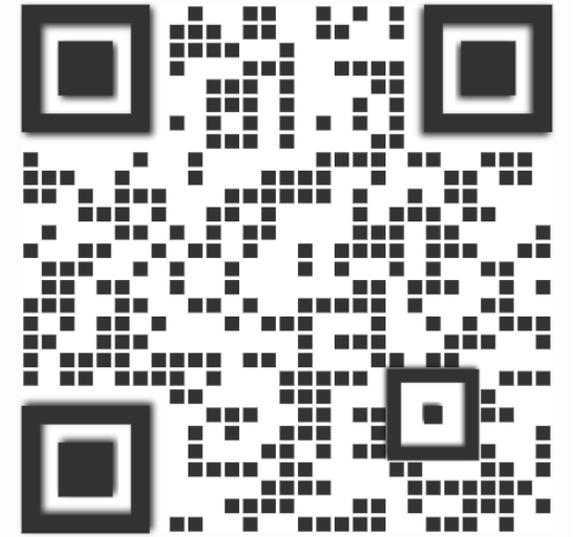
DIGITAL ACTIVIST / SOCIAL CRITICAL ENVIRONMENTS

Source: Pure Digital

- Digital Activism
  - Activism using mobile devices in digital networks
  - Use of digital channels for mass mobilization of political protest (not limited to)

Source: Reuters

- Social Critical Environment
  - Political activism, religious practices, race relations, or sexual orientation
  - Face discrimination or persecution in a given environment, such as war zones or autocratic governments

Source: Euronews

PARTICIPANTS

- Four different organizations

- Different types of stakeholders to collect various viewpoints

- Some interviewees have no formal or professional security or privacy education background

	ORG1	ORG2	ORG3	ORG4
Org type	NGO, human rights	NGO, intergovernmental	NGO	private company
# of staff	20+	1000+	1000+	10+
Focus	privacy, freedom	refugees, emergency response	emergency response, conflicts	investigation, training
Locations	Europe, Americas	branches in 100+ countries	umbrella for 20 orgs + local affiliated orgs	Europe, distributed architecture
Area of operation	Global	Global	Global, war zones	Global
Participants	ORG1P1: Technologist, ORG1P2: Advocacy Officer	ORG2P1: Chief Strategic Manager	ORG3P1: Head of Inf. Security, ORG3P2: Program Lead, ORG3P3: Senior Humanitarian Policy Adviser	ORG4P1: Investigative Journalist

QUESTIONNAIRE

- Semi-structured interviews via video conference

- Questionnaire with multiple sections

- For security and privacy requirements we followed the STRIDE and LINDDUN framework

- Questionnaire location: https://tinyurl.com/2p84zeum

DE MONTFORT UNIVERSITY LEICESTER

Interview guide and questionnaire for the research project

Unified Communication Architecture for Social Critical Environments

Introduction

The research overview and background for this interview is described in the *Participant Information and Consent Form* provided to the interviewee. This interview focuses on the requirements of an organisation/individual in the context of social critical environments with the need for Unified Communication (UC). The structure of the research is planned in multiple stages:

1. Work with multiple project participants to discover the specific functional, security and privacy needs with the help of interviews for the UC architecture.

ANALYSIS

- Thematic analysis to extract requirements

- Approximately 140 codes were identified and associated -> themes

- Not claiming completeness or cohesiveness
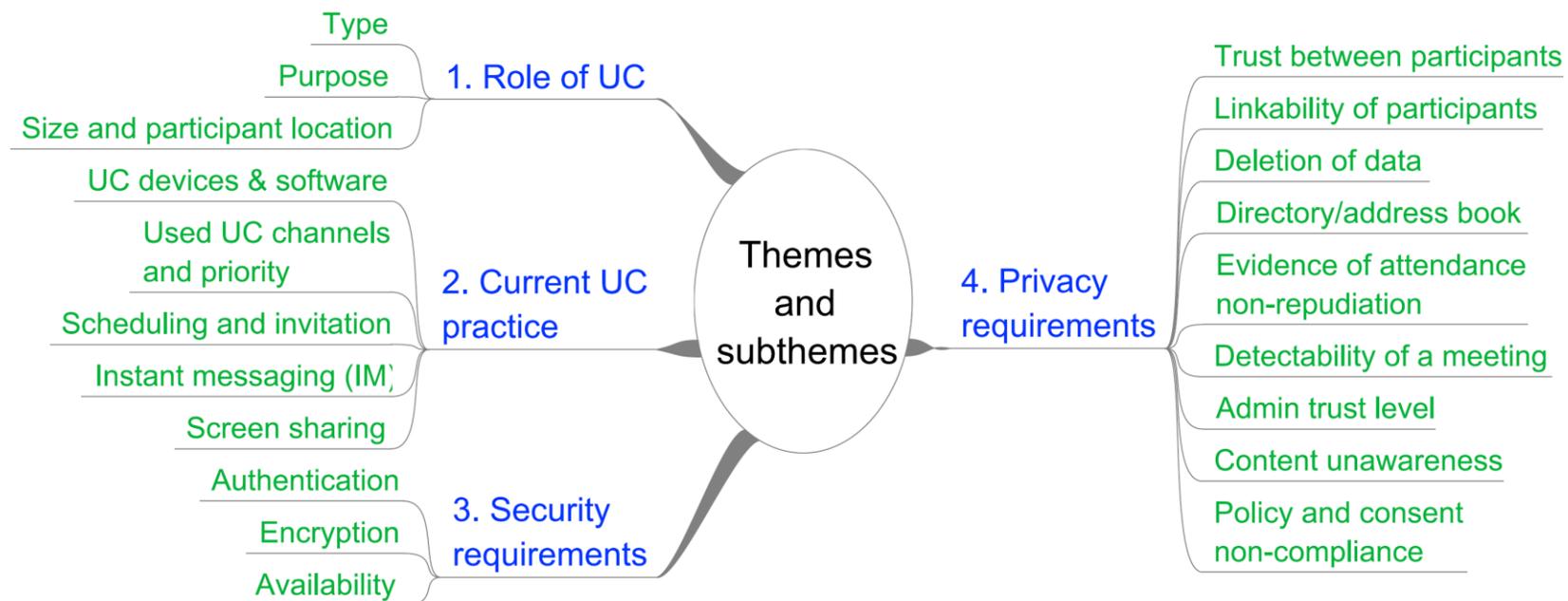
TECHNICAL REQUIREMENTS

- Confidentiality (e.g., end to end encryption)

- Security and Privacy Configuration (e.g., recommended and understandable on-per-default)

- Contradictory Requirements and Trade-offs

  - Security/Privacy vs. Convenience (e.g., unsecure e-mail invitation)

  - Security vs. Resources (e.g., type of deployment)

	The UC platform needs to...	Class	Priority	Available
REQ01	be able to host multiple internal and external participants	FR	high	●
REQ02	support a wide variety of devices and operating systems	FR	high	●
REQ03	provide channels for IM and screen sharing	FR	medium	●
REQ04	provide *good* audio and video quality	NFR	high	●
REQ06	provide a secure e-mail based invitation system	FR/NFR	medium	○
REQ07	provide configurable authentication of meeting organizers and participants	NFR	medium	◑
REQ08	encrypt data in transit and at rest adequately	NFR	high	◑
REQ10	provide choices for deploying and operating the UC architecture	NFR	high	◑
REQ11	provide a technical compliance check of the UC client host including updates	NFR	medium	◑
REQ13	provide configurable security features for meetings and UC client	NFR	high	◑
REQ14	provide a configurable data retention mechanism	NFR	medium	◑
REQ15	provide a secure and coordinated address book with access control	FR	low	◑
REQ16	provide an unsuspicious UC client	NFR	high	◑
REQ17	provide the un-detectability of UC traffic and anonymity	NFR	high	○
REQ18	provide secure administration and management of the UC infrastructure	NFR	high	◑
REQ20	provide configurable privacy features for meetings and UC clients	NFR	high	◑

SOCIOTECHNICAL REQUIREMENTS

- Private device usage

- Code of conduct and training for security and privacy

Requirement	Users of the UC platform need to...
REQ05	prevent the unwarranted use of private devices and phone numbers.
REQ09	be aware of confidentiality requirements.
REQ12	have a code of conduct and training to preserve the security of meetings.
REQ19	have a code of conduct and training to protect the privacy of meetings.

CONCLUSION 1/2

- Identified issues within the requirements

    - Incompleteness

    - Contradictions

    - Security vs. convenience

    - Security vs. resources

    - Feasibility

- Notable missing requirements of common UC platforms

    - Unsuspicious UC client

    - Undetectability of UC network traffic

    - Acceptance of insecure e-mail meeting invitations

    - No end-to-end encryption

CONCLUSION 2/2

- Trend for convenient consumption of UC as a commodity

- Lack of end-user awareness (exposing metadata, end-to-end encryption missing,…)

- Ongoing user training to increase awareness

- Technical privacy-protecting features enabled by default would be superior