Proposed Development of Specialized Chips for Next Generation Digital Communication, Data Storage, and Data Security

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Introduction and Objective Statement

- I developed patent pending enablers for potentially disruptive technologies in the compression and encryption/data security areas. Currently, a family of six patents is filed. The first patent in this family is issued: **US 11,677,416**
- The implementation of these enablers for the most demanding and spectacular applications require specialized chips. A software implementation is appropriate for less demanding applications
- I am looking to partner with a semiconductor company where preferably I coordinate this development until the products are launched
- Partnership with a software company is desirable as well, targeting these less demanding applications, with exclusivity on the IP for software implementation
- The benefits for such companies in pursuing this development are potentially incommensurable from multiple perspectives --- financially, product portfolio, road opener and trend setting…
- My credentials can be found at RecResearch-Semi.com

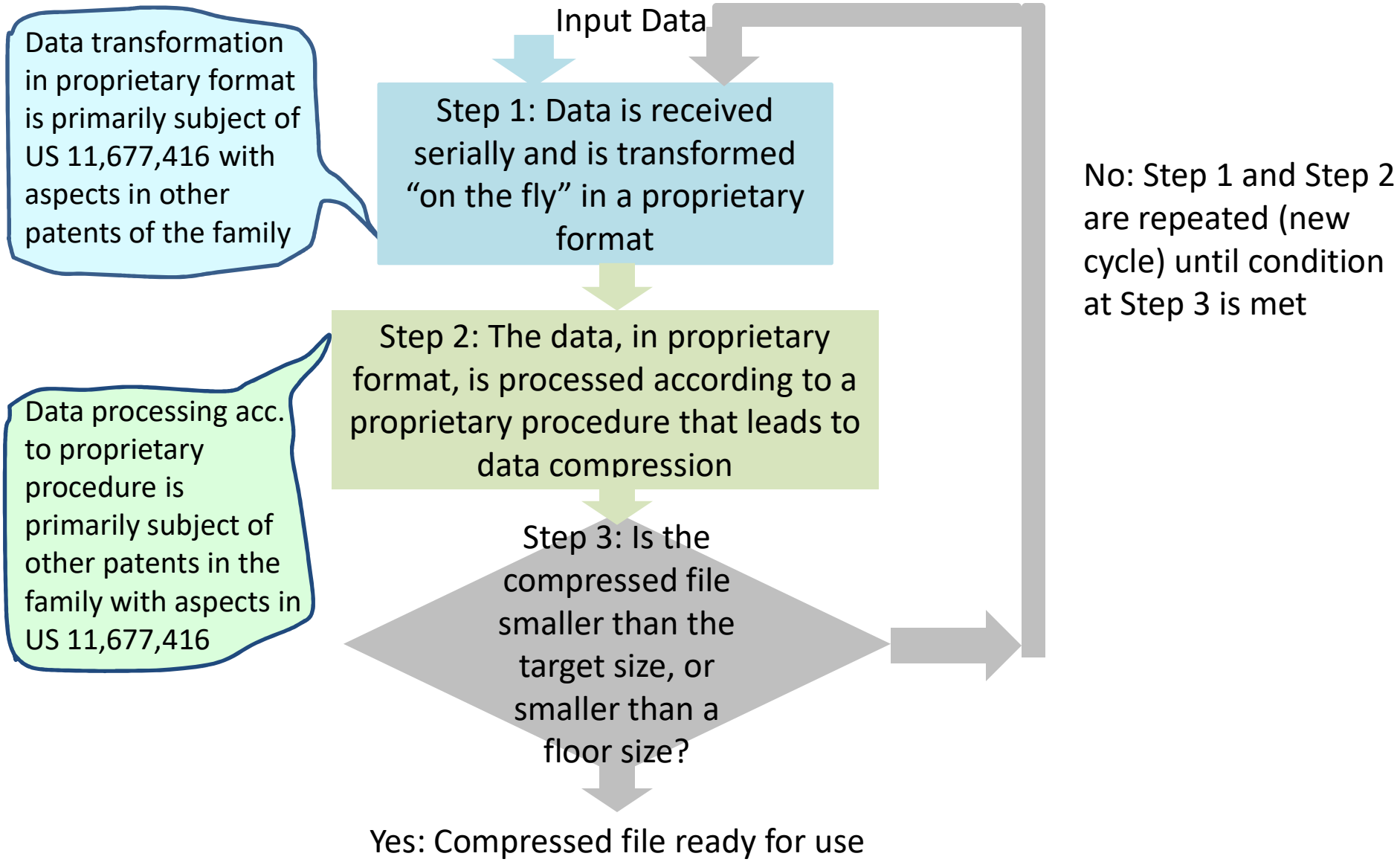
Why this IP?

- The amount of data that is generated and shared by everyday people is astounding and keeps increasing
- Today, to facilitate this, the main focus is on aspects such as communication capacity, speed, networking infrastructure, all that keeps increasing to cope with needs – but this path has limitations, and is expensive for all parties – developer, provider, consumer
- This IP and their implementation will shift part of the focus towards specialized processing power at the data transmitter/receiver, greatly relaxing the requirements of the communication channels and the associated costs
- In addition, this IP and these specialized chips will open-up completely new applications and reach a level of performance for current state-of the art in certain existing applications that is not possible today
- Further, implementing the encryption IP in applications such as IoT, ADAS, banking, opens up the capability to have automatic, unique, device-to-device specific encryption with no human intervention

IP Fundaments

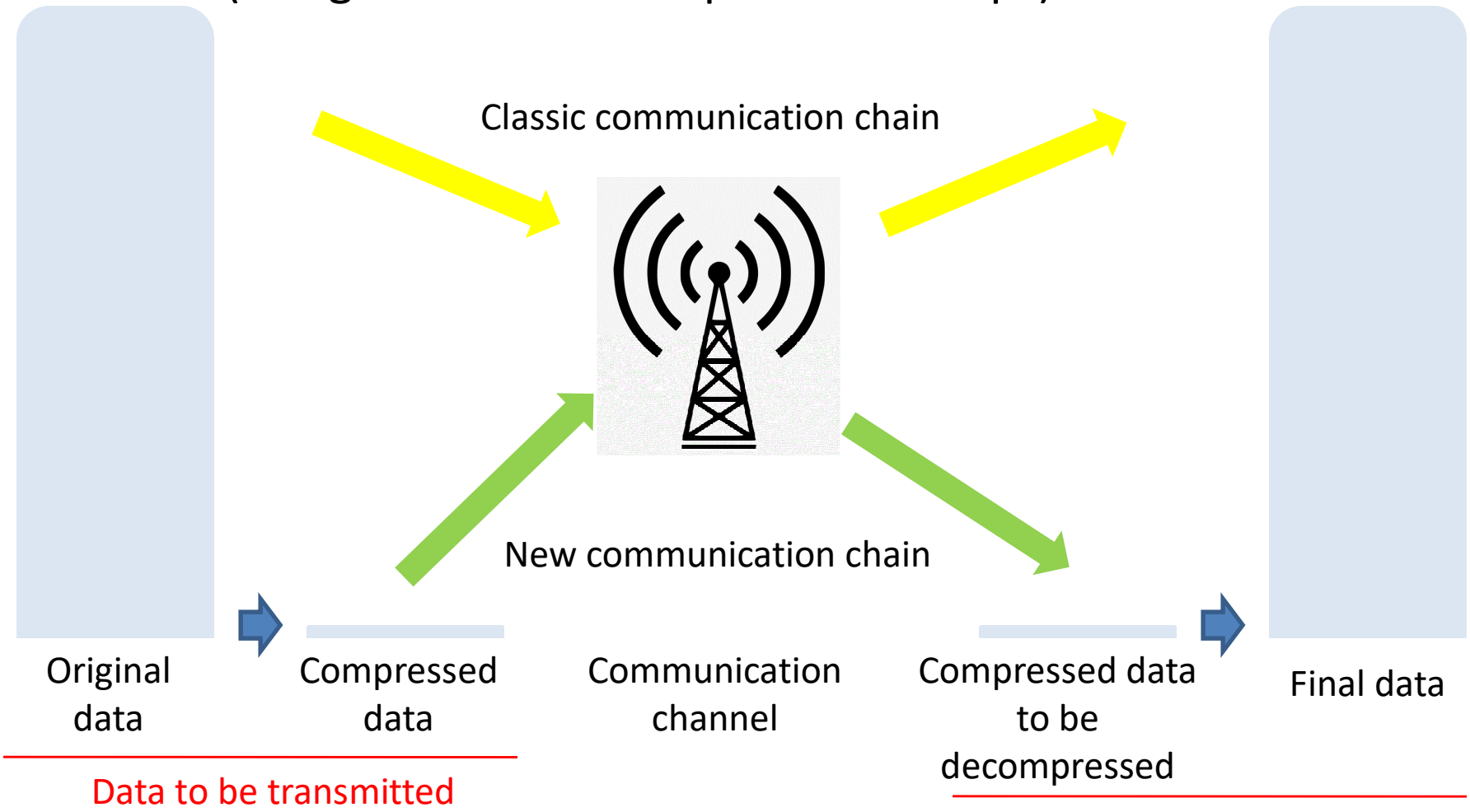
- Ideal target: compress any file, of any size, of any content, in any conditions, including circumventing information theory implied limitations
- The filed IP closely achieves this ideal target, with the following highlights:
  - Lossless compression of any file of size larger than a floor size, from the (file size) to (larger or equal to floor size). Example: 1T to 10M, or 1G to 20M, with the difference in the number of compression cycles, parallel processing streams, and processing time.
  - A derivative of the compression infrastructure leads to unique encryption characterized by a practically infinite encryption space, real-time encryption, no need to exchange encryption keys or passwords, enabling device-to-device specific dedicated communication channels and untraceable communication.

Technical Details --- Overview: Compression flow

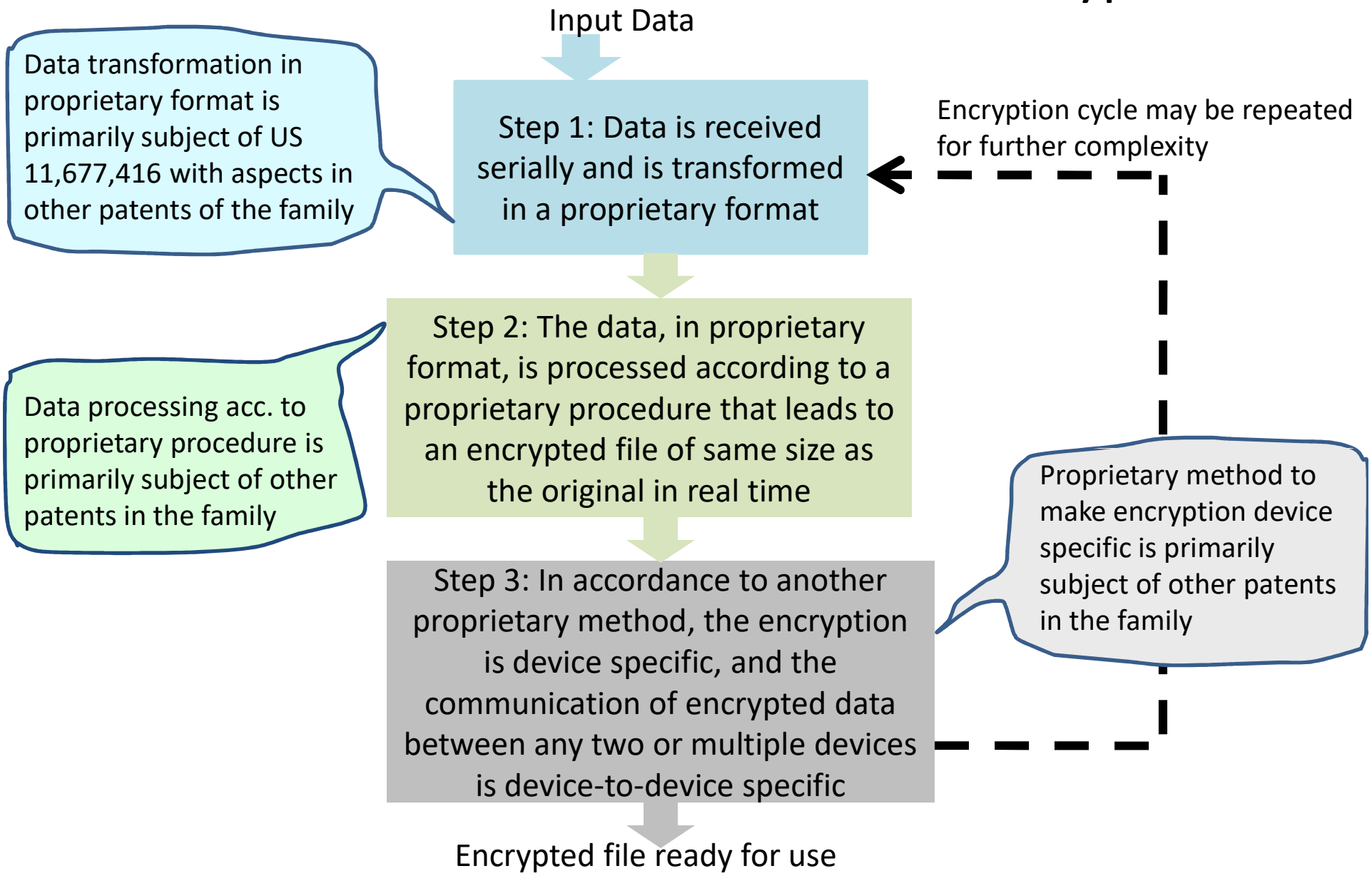


Usage example in a communication application

- Example depicting communication chain comparison --- classic vs. new (using this IP and the specialized chips)

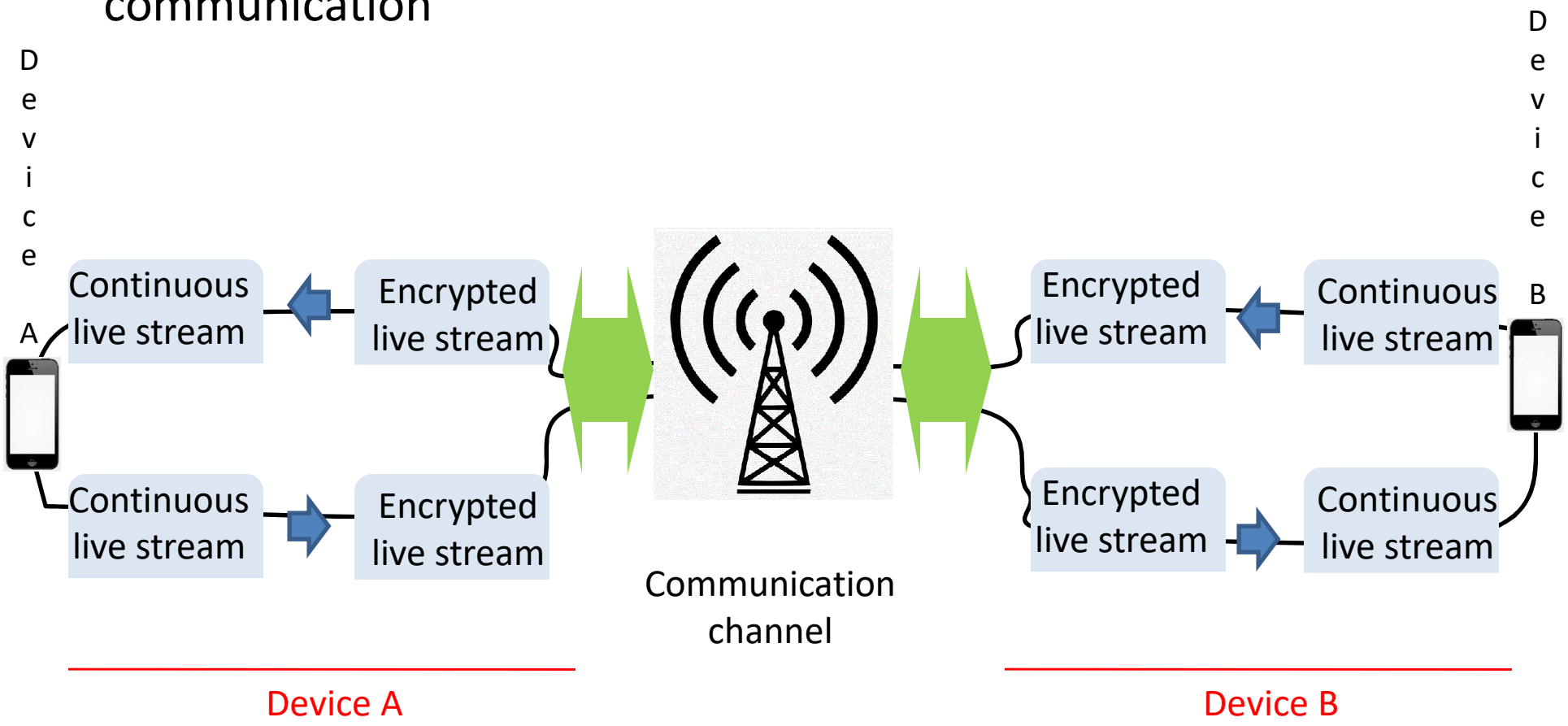


Technical Details --- Overview: Encryption flow



Usage example: live encrypted communication

- Example depicting live dedicated device-to-device encrypted communication



Projected Market and Applications

- These specialized chips are envisioned in:
  - Every laptop, for streaming, internet, social media, data storage, audio, video, data applications
  - Every TV, currently for streaming, standard HD broadcast
    - A new raw-video broadcasting standard (ultimate in HD video) can be enabled by these chips
  - Every cell-phone, for audio, video, data applications, including Hi-Fi full-band audio
  - Every camera and other multi-media and data devices, including every hard-drive
  - Every such specialized device can encrypt the data providing encrypted video broadcast, cell-phone communication, data storage, streaming… all seamlessly available at no special cost and best quality to every-day user
  - Use of encryption, with or without compression, for device communication in fields such as Internet of Things (IoT), ADAS, and banking; the encryption process automatically provides unique device-to-device encryption without exchange of any encryption keys, exchange that can be intercepted or compromised
  - The encryption and compression enable encrypted and untraceable communication

Projected Market and Applications

- These chips will also disrupt and change the way many companies are doing business and sell consumer services and products. Examples of such areas:
  - Internet companies such as Google
  - Social media companies such as Meta
  - Streaming companies such as Netflix
  - Communication and cell-phone companies such as AT&T
  - Software companies such as Microsoft
  - Data security
  - Networking infrastructure
  - Cable
  - Data storage and back-up
  - …