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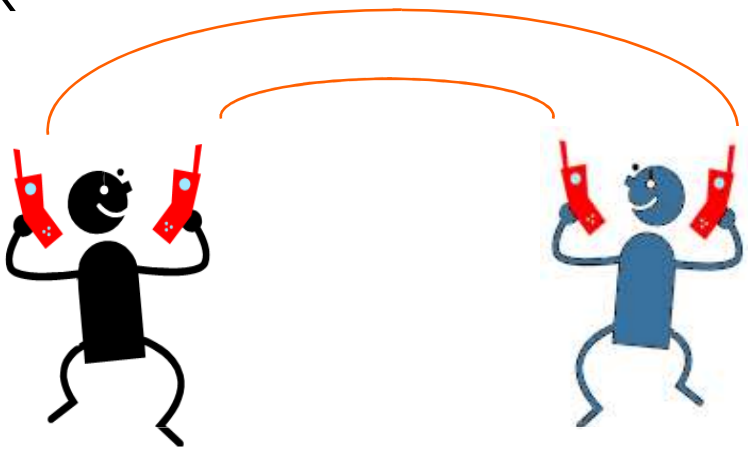
DSiP
Distributed Systems intercommunication Protocol ®

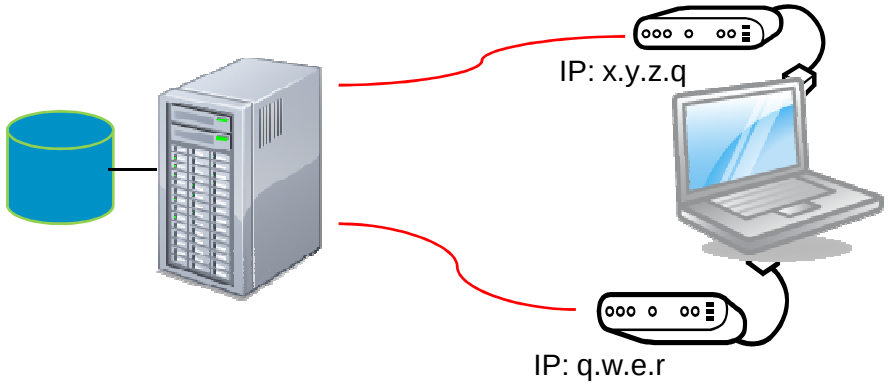
A Communications Services Platform avoiding Cyber Warfare effects

What is multichannel communication?

Multichannel communication is the ability to communicate over multiple physical connections simultaneously and in parallel so that all communication links appear like a single uninterruptable and robust link



People <u>can</u> do this (if they want)

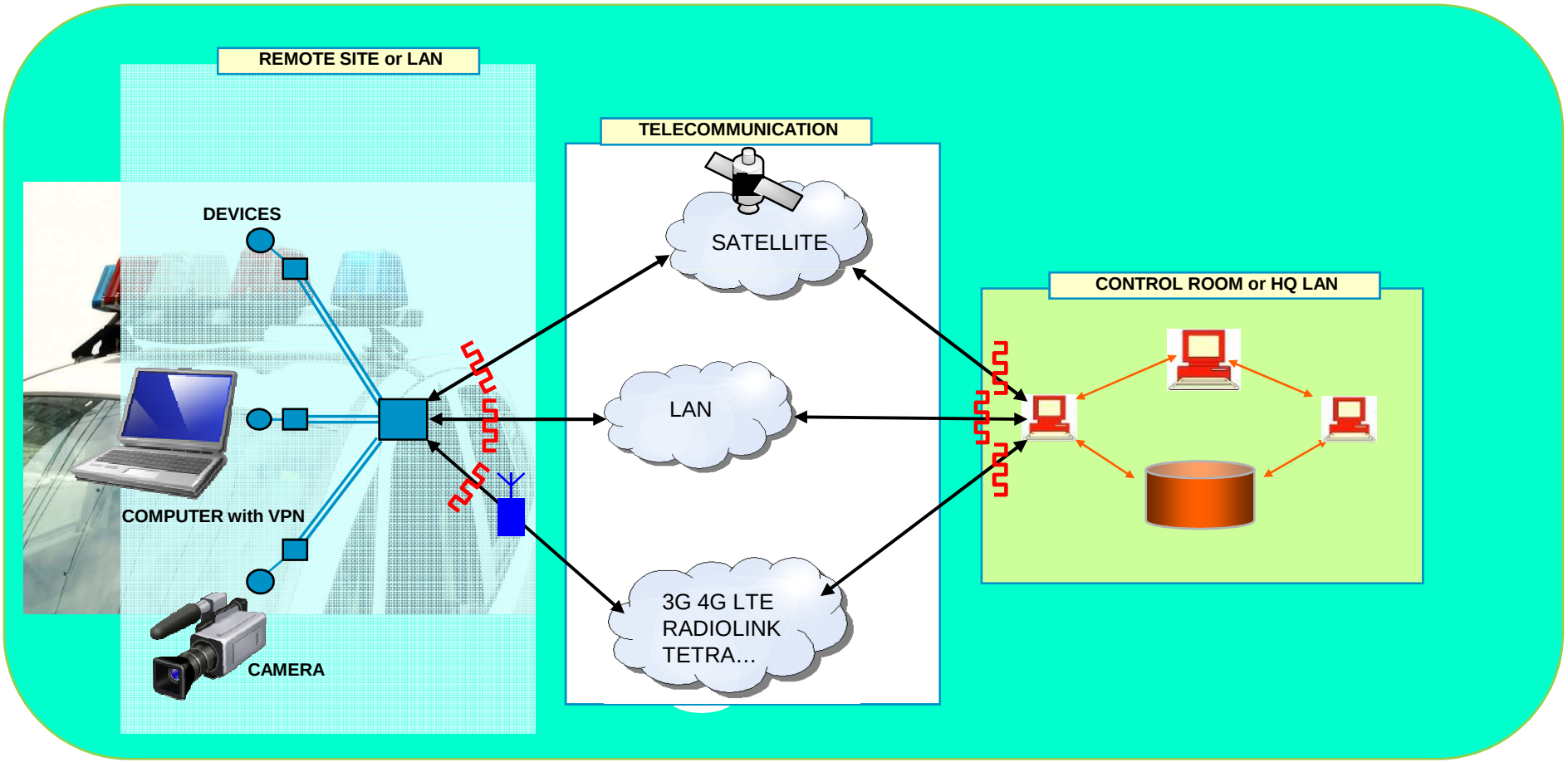


Computers <u>can't</u> generally do this even if "they would want to"

The IP protocol used for data transfer can not bind a socket over two or more physical connections simultaneously to make a single connection

Multichannel communication is:

Parallel use of data links regardless of technology. All multiple parallel channels must appear as a SINGLE unbreakable communications channel



Why has DSiP been developed?

Reasons for developing DSiP

1. **Cyber warfare IS REALITY – Viruses, Denial of Service attacks etc.**
2. **The IP protocol can’t do multichanneling and multichanneling VPN’s do NOT solve the problem**
3. **More and more applications use IP-protocol for transfer**
4. **Machines and Software are not compatible, DSiP makes compatibility**
5. **Mixing teleoperators and the application can be problematic**
6. **Taking future protocols into account: IP v4, IP v6 and others**

6 Important topics when considering architectures:

1. **Technical reliability and trustworthiness**
   - The communication must be failsafe and ”unbreakable”

2. **Considering the investment**
   - Solutions must withstand time as technology constantly evolves

3. **”Special circumstances” may occur at any time**
   - The telecom operator may not ALWAYS be there?

6 Important topics, continued:

4. **Co-operation between different actors**
   - Users may have different ”statuses” and ICT-policies. For example: Government vs. Civilian as in Army, Public Safety and Industry. Users may need to interact on the same communications platform.

5. **Freedom of choice**
   - The customer should be the ”master” of his application, not the telecom operator or vendor

6. **Special situations**
   - Communication solutions should allow Ad-hoq users in a safe way – Safety and Reliability first

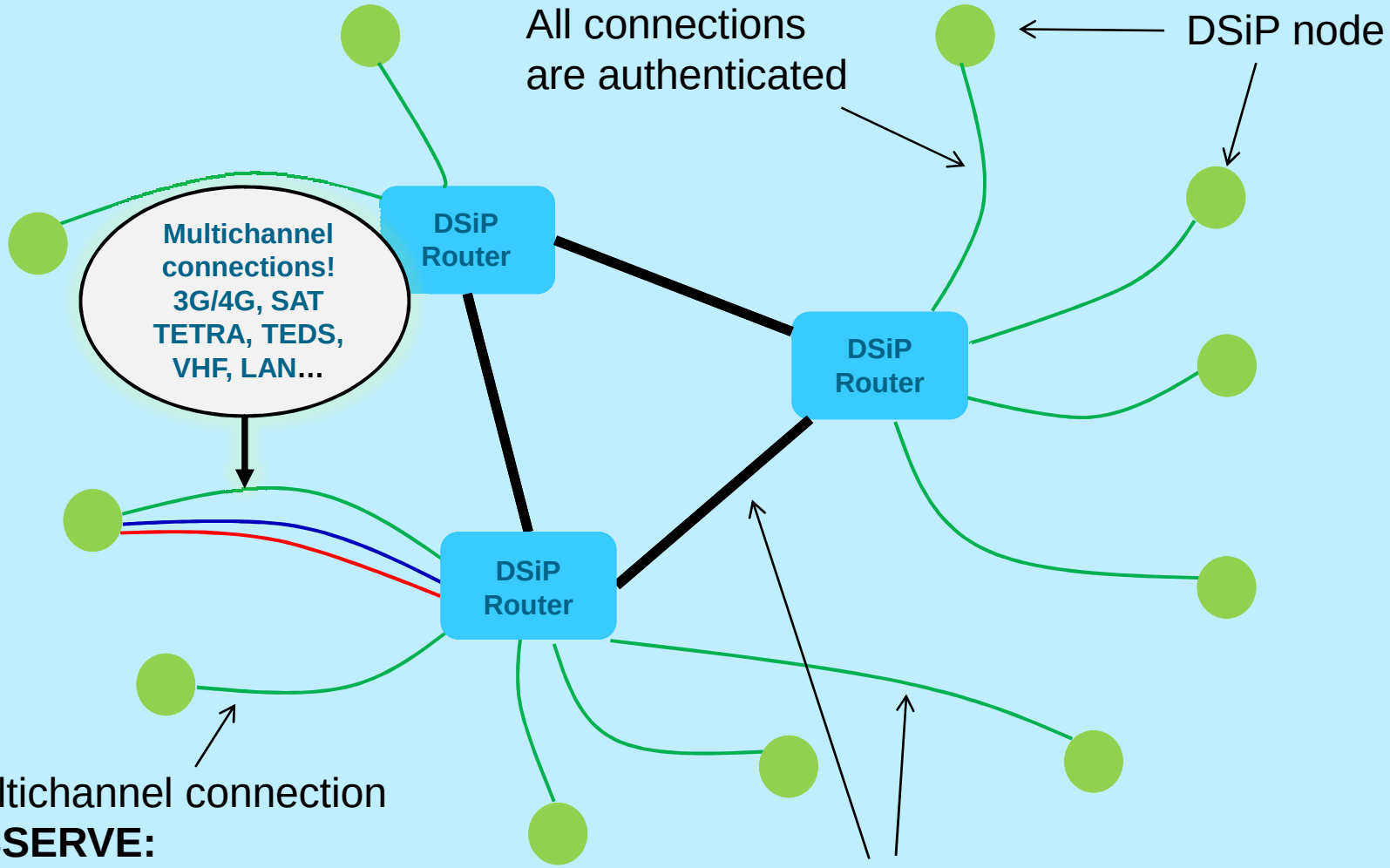
Benefits of using DSiP

- **Better security and reliability**
- **Parallel communication, multiple paths**
- **Better control of data traffic, Priority/Services**
- **Flexible software, runs on many platforms**
- **Enables services, not just ”holes in the wall”**

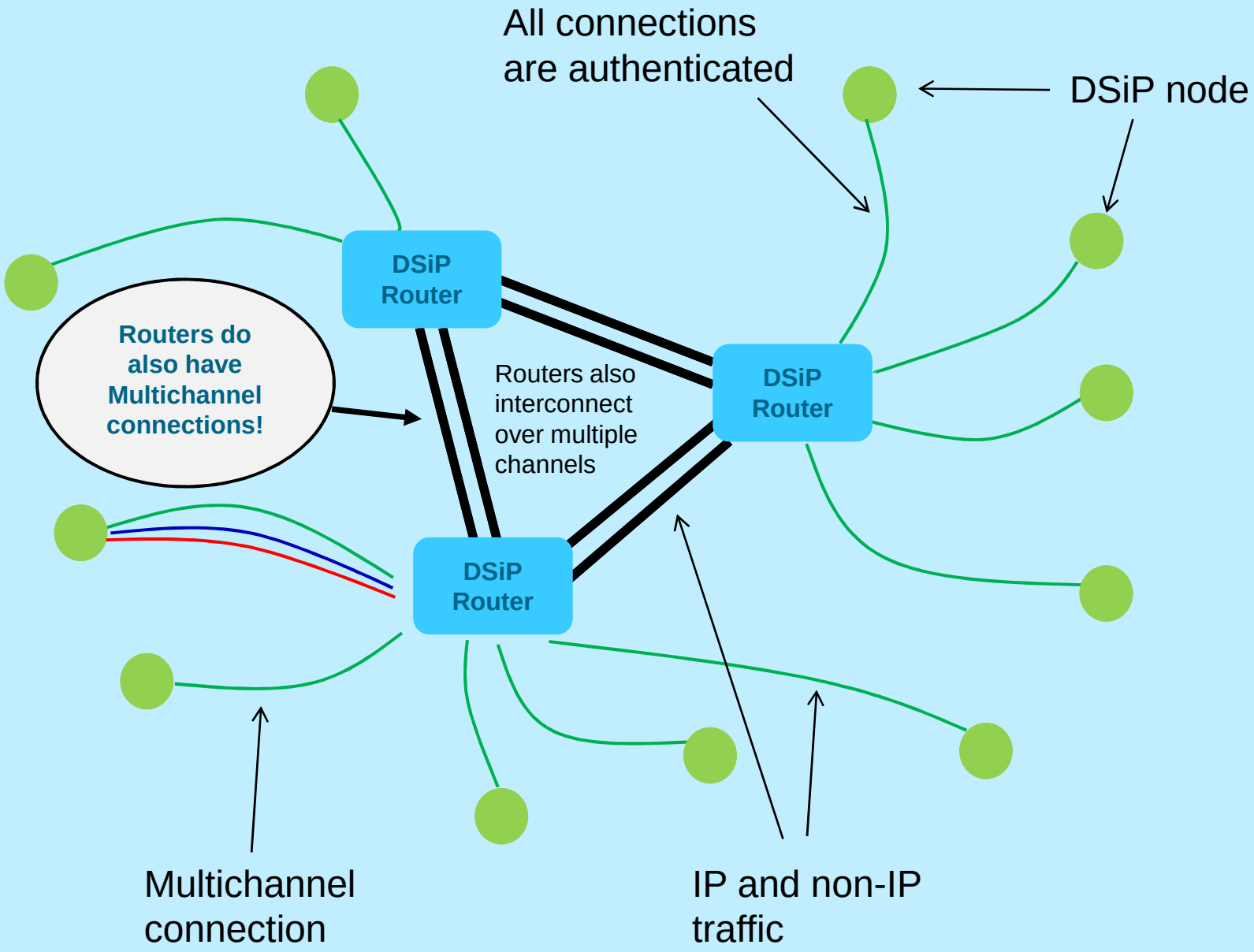
DSiP Explained

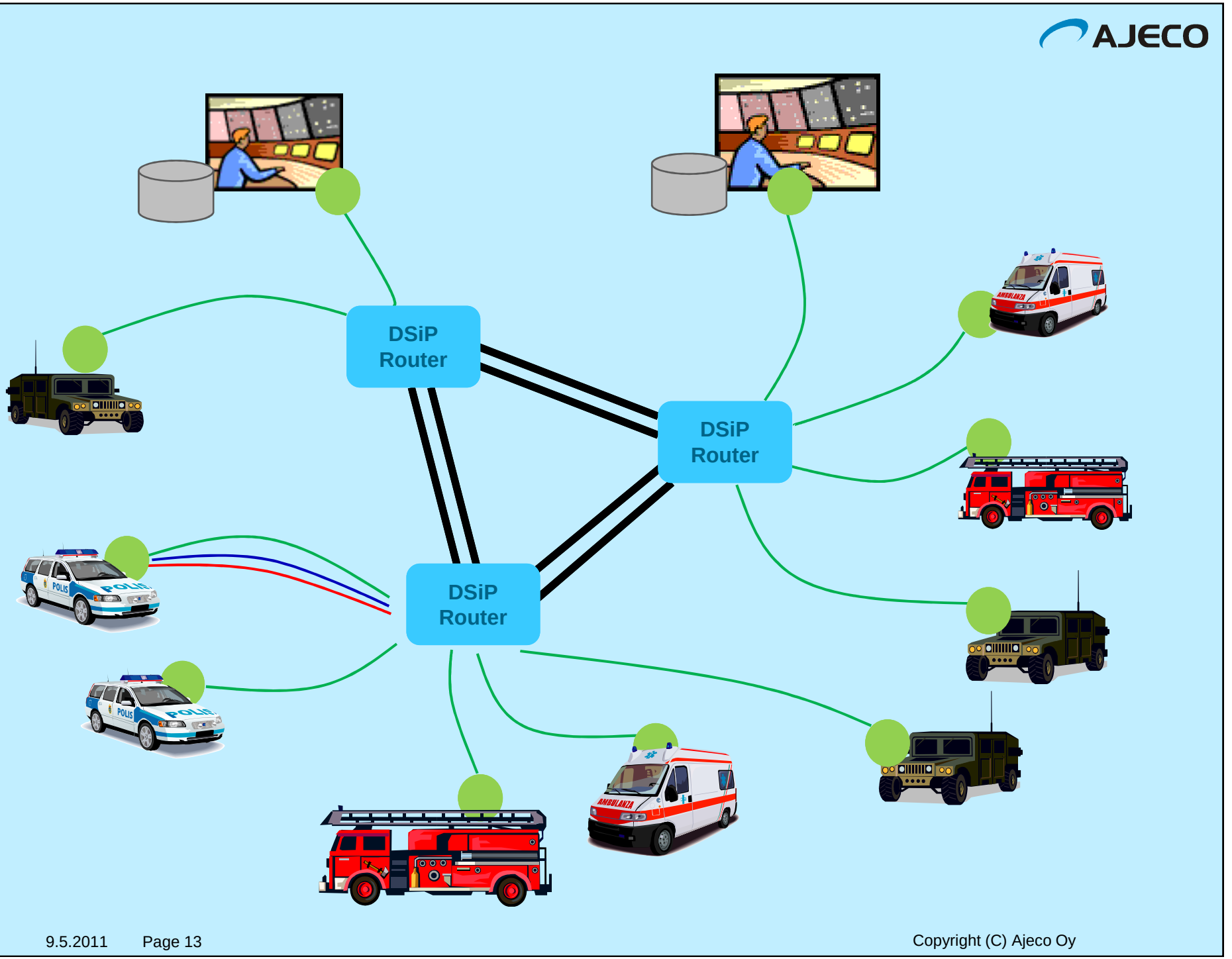
”how does it work?”

DSiP consists of two types of software, Nodes and Routers make Nodes and the interfaces point to DSiP routing network



DSiP Consists of two types of software; Nodes and Routers
Nodes are the ending/interface points in a DSiP routing network



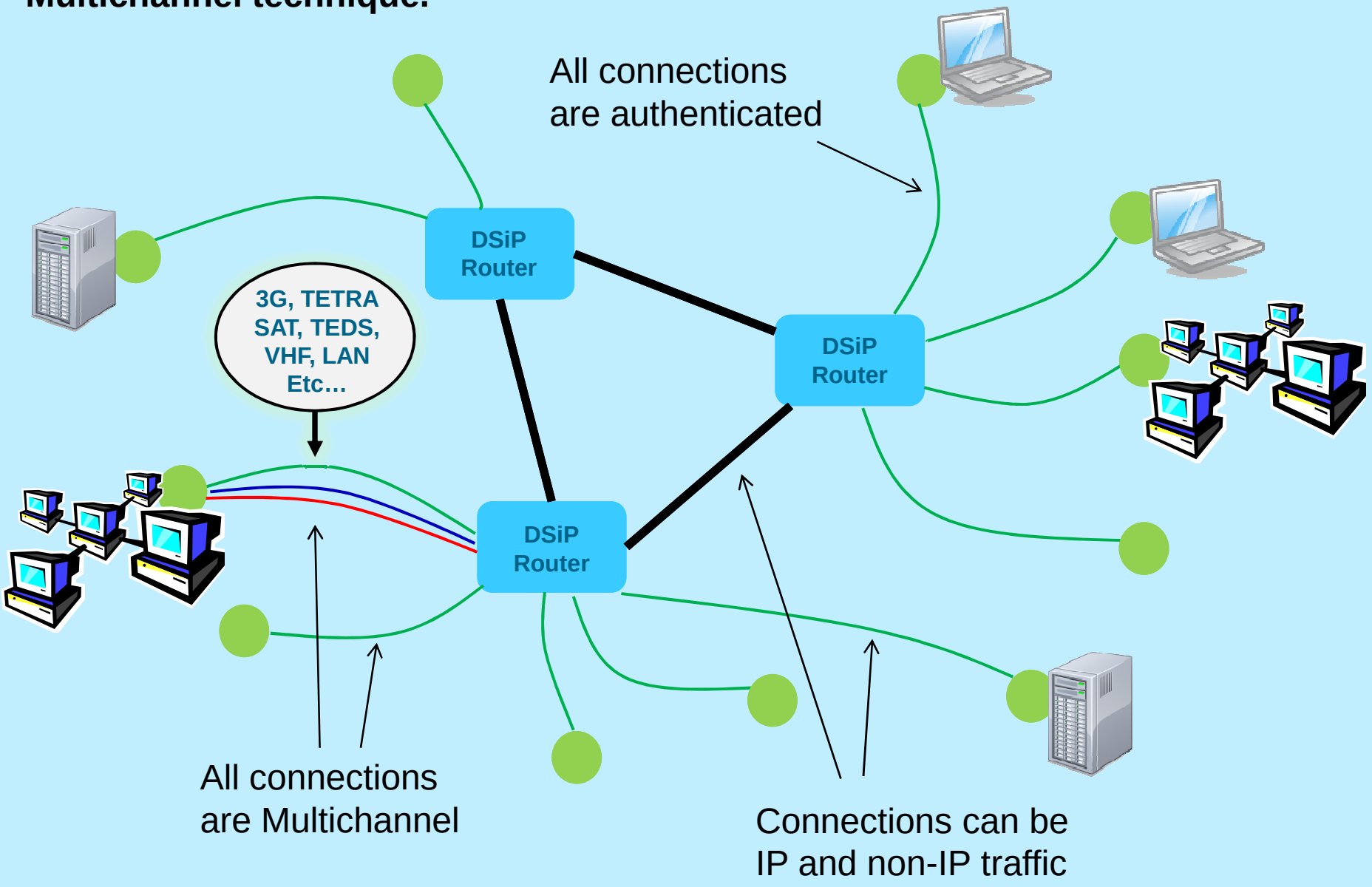


DSiP – Distributed Systems intercommunication Protocol

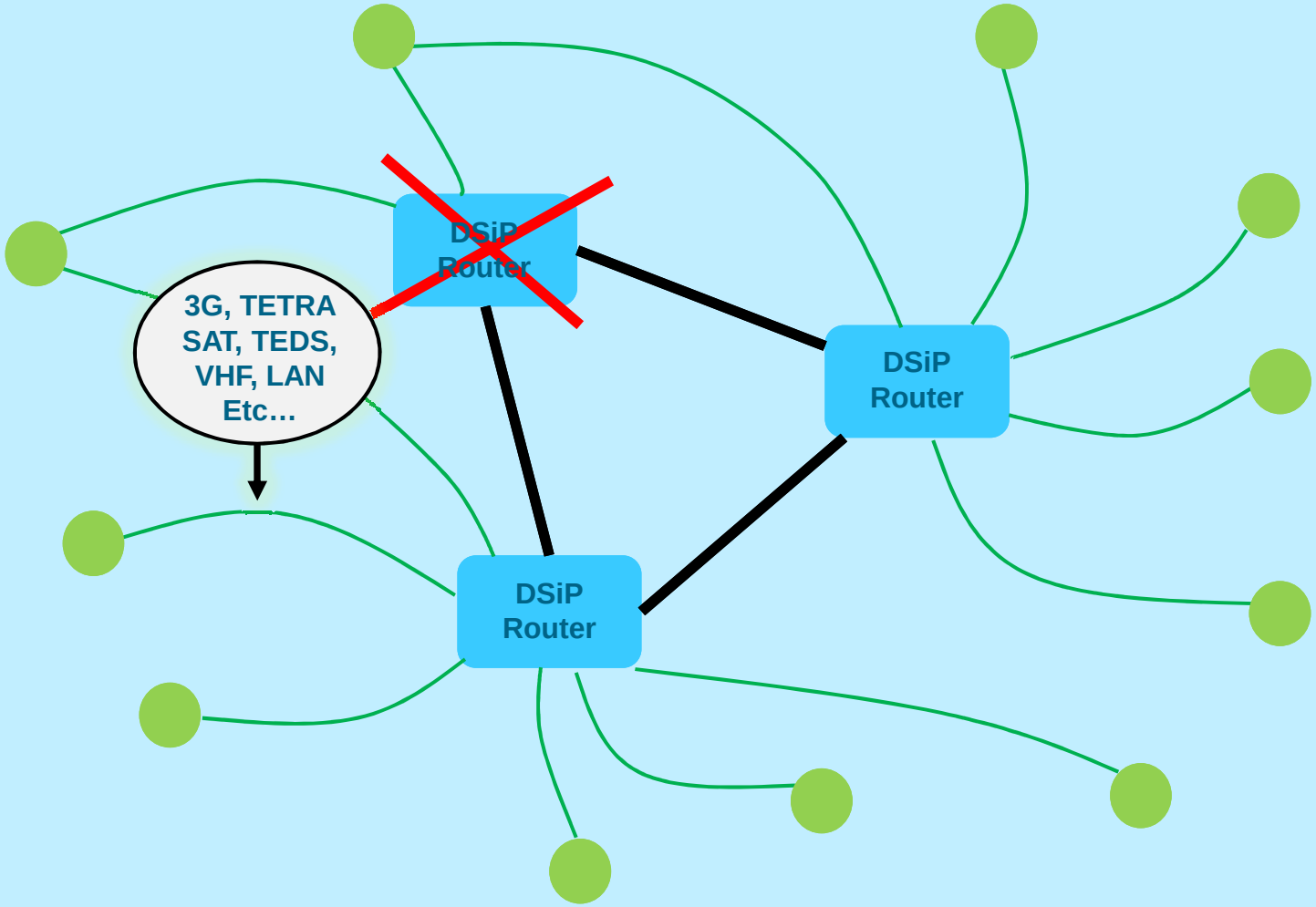
- **Only known and proven RFC's are used**
- **Connections are secured with SSL, AES256 (Diffie-Hellman)**
- **DSiP is not "bending" any rules of IP-communication, it just combines existing technology in a clever way**

With DSiP you can interconnect any device or network segment using any kind of media, be it IP or Non-IP, in a redundant and secure way

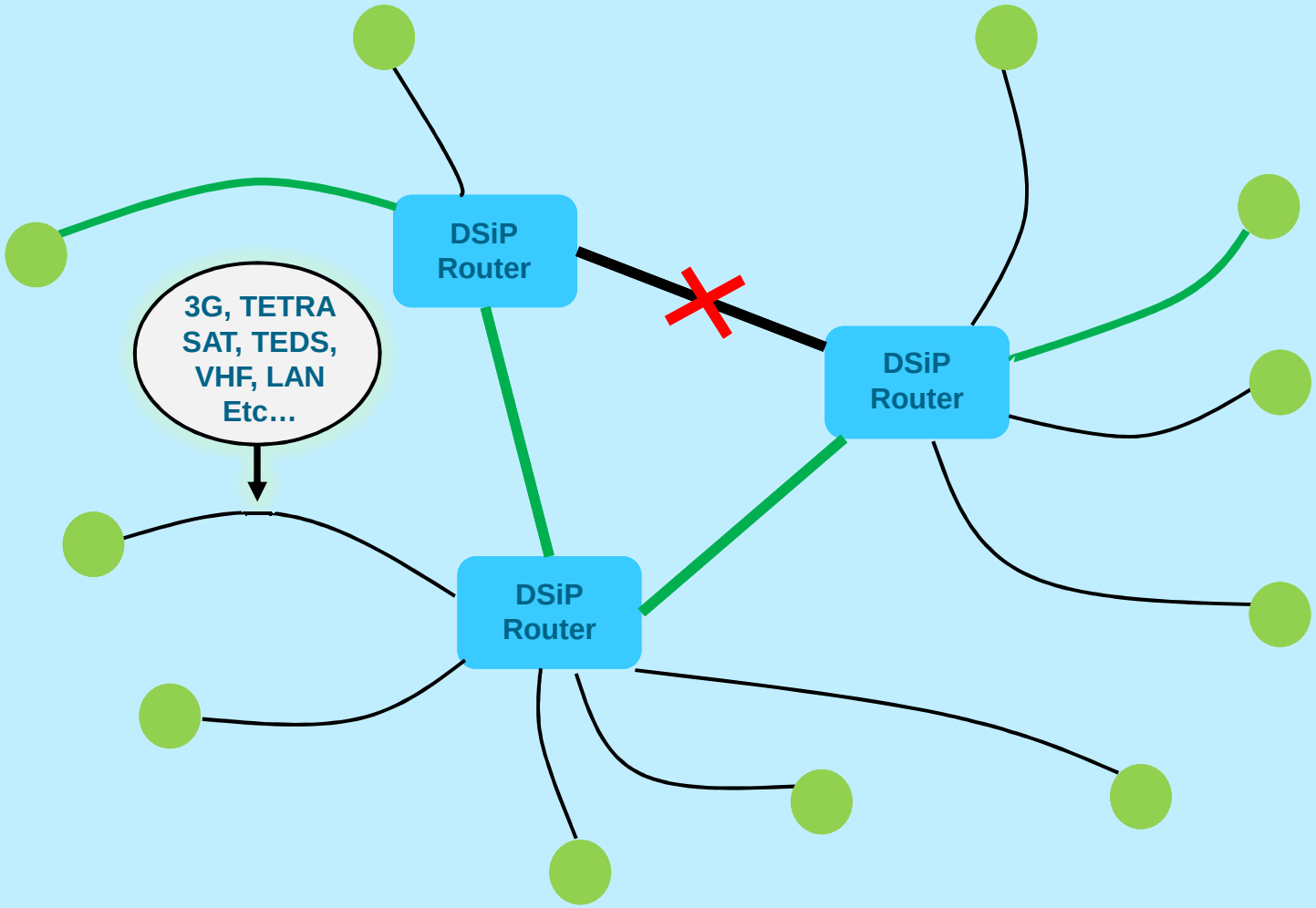
With DSiP the connections between network segments and devices will be unbreakable because they interconnect using Multichannel technique.



The modular DSiP system is not sensitive to DOS attacks since nodes actively maintain the connections – if a connection breaks, others will automatically form.



If Router to Router connections breaks, the DSiP system routes information via other DSiP routers



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DSiP may be regarded as a multi-point to multi-point VPN tunnel with better control over priority, security and reliability

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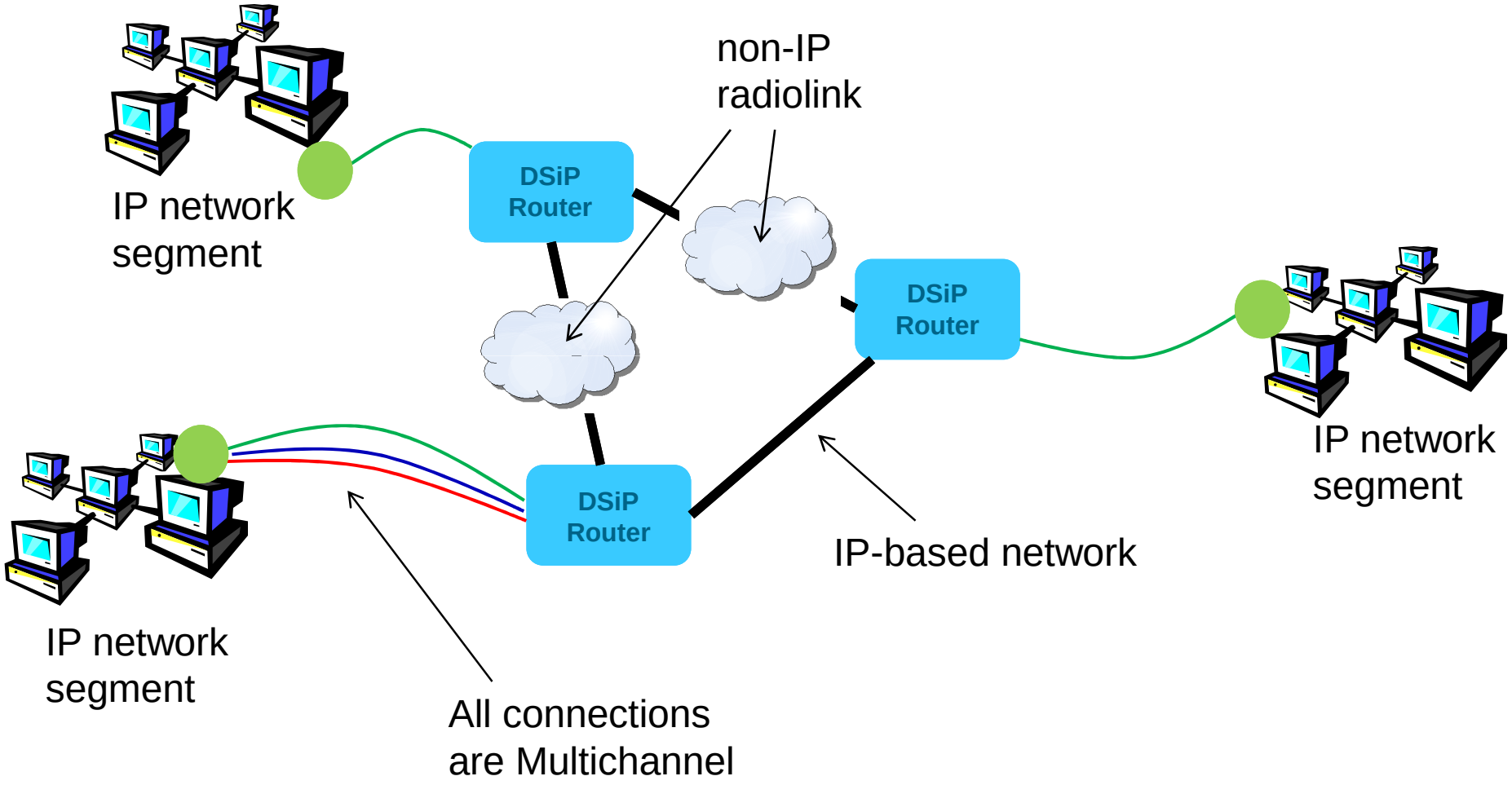
DSiP can use both IP-based networks and non-IP communication in parallel!

IPv4, IPv6 and non-IP can all co-exist

DSiP may, for example, connect IP-based networks together using non-IP communication. DSiP is capable of tunneling data through itself using any kind of physical communication



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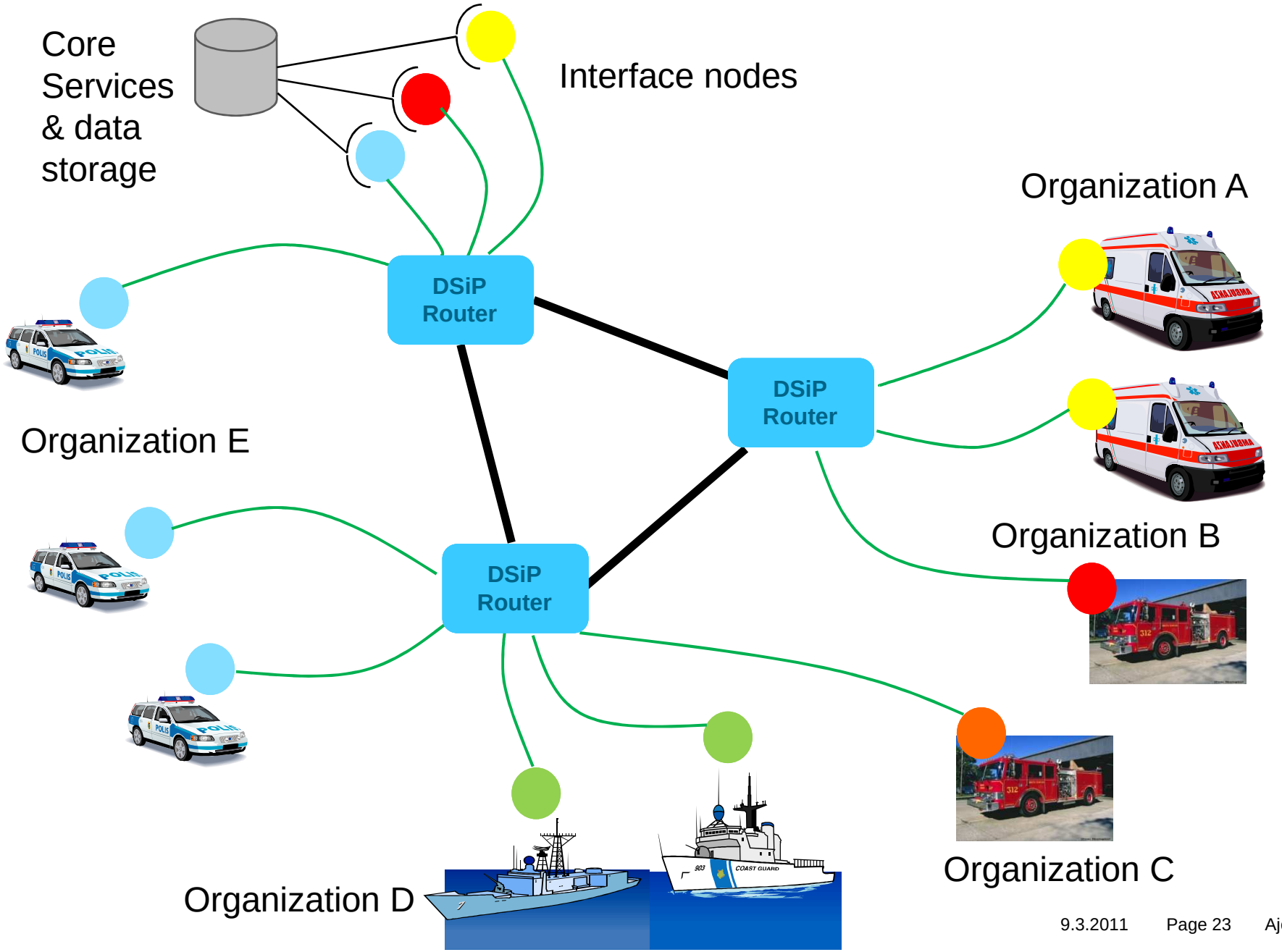
Applications and devices will ”see” the multiple connections as they would be a single connection

No need to modify ANY application or device

Avoid drilling holes in your security, instead provide services!

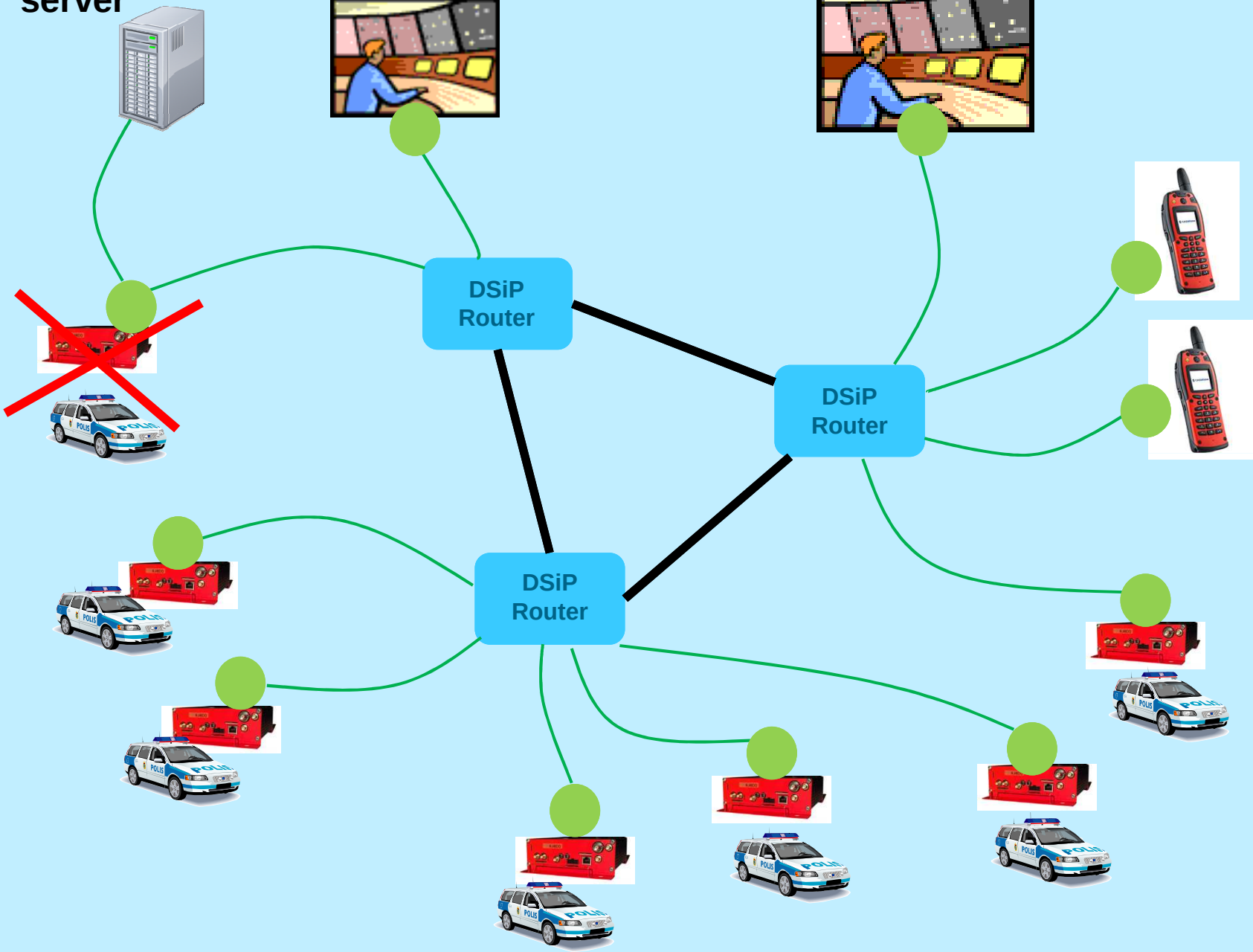


DSiP
USES ALL KINDS OF COMMUNICATION

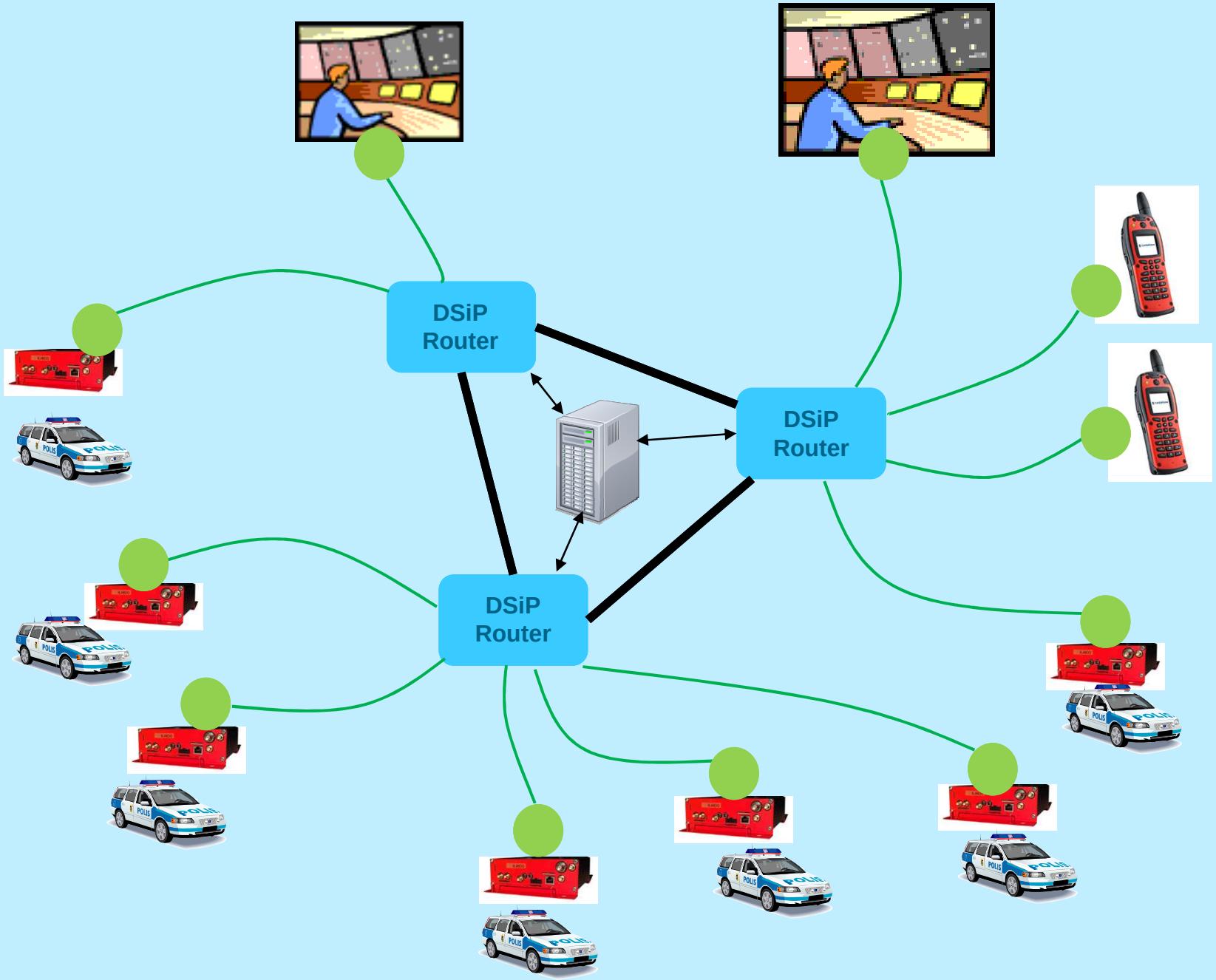
DSiP contains tools for:

- Monitoring the network
- Centralized authentication
- Configuring the system

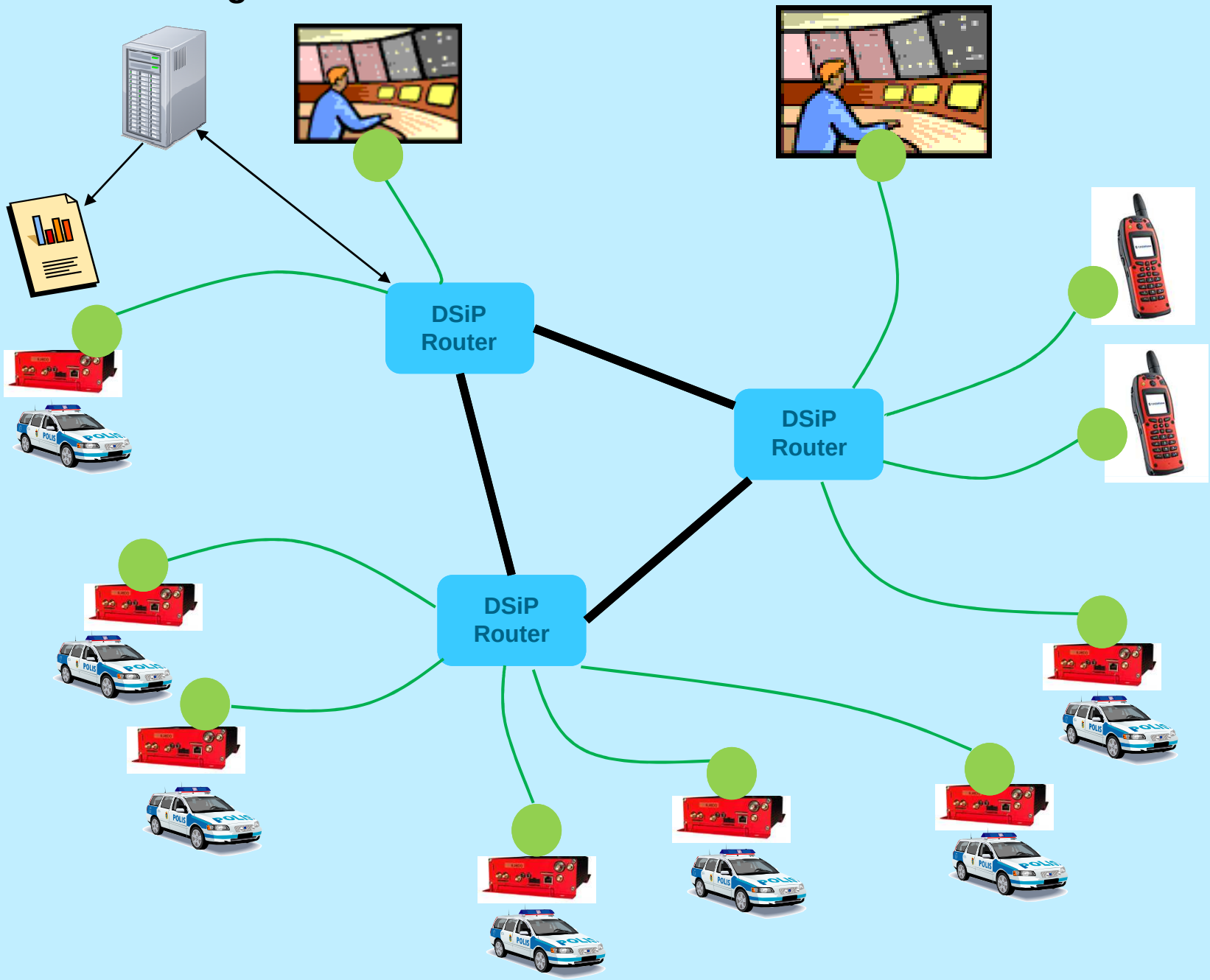
Configuration server



Centralized Authentication Server



Network Management Server



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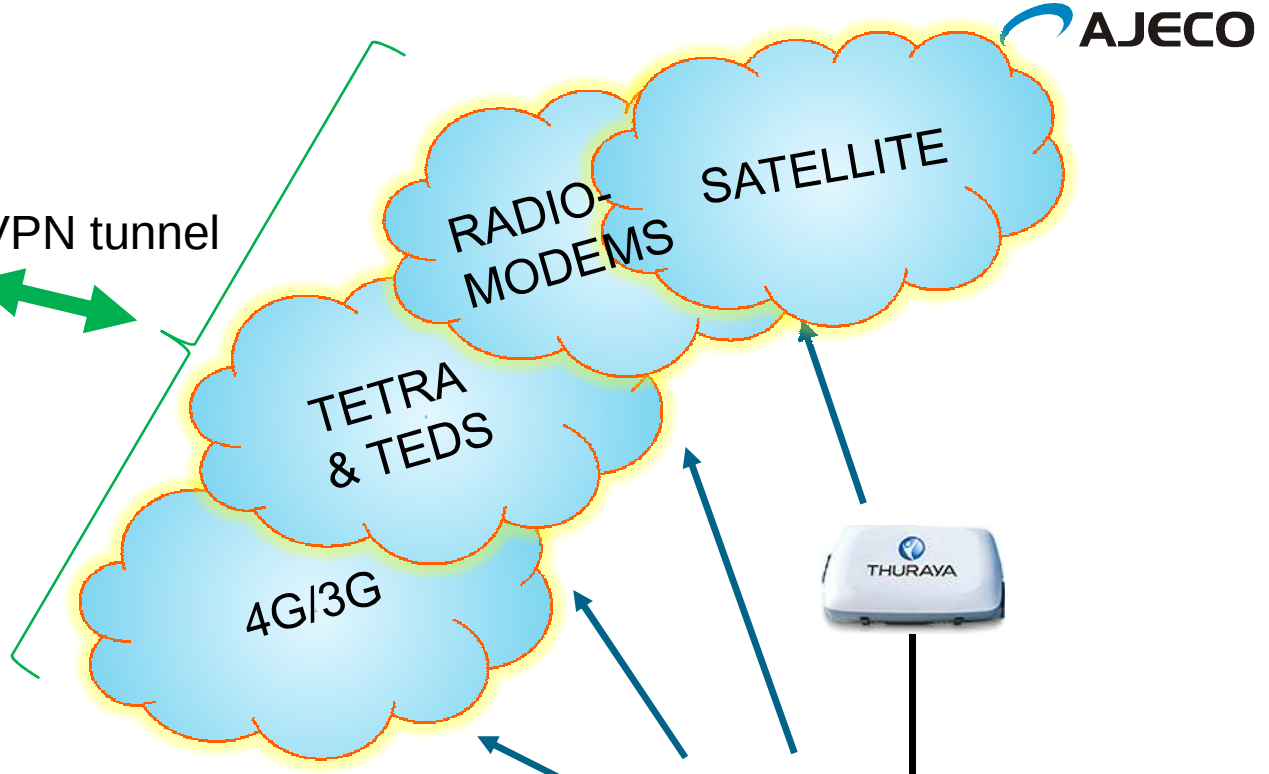
All the aforementioned is handed to you in the **DSiP** multichannel communication architecture

DSiP – A software solution for Secure Multichannel Communication

DSiP Distributed Systems intercommunication Protocol ®

Control room services

VPN tunnel



Multi-channnel router

VPN tunnel

- Internal 4G/LTE and 3G modems
- GNSS receivers, WiFi hotspot
- Internal TETRA modem
- Satellite modem connectivity

Thank you for your attention

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