

TECHNICAL ASPECTS OF SMART BUILDINGS

ISH 2019

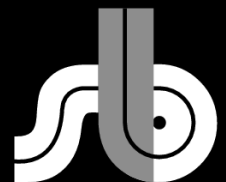
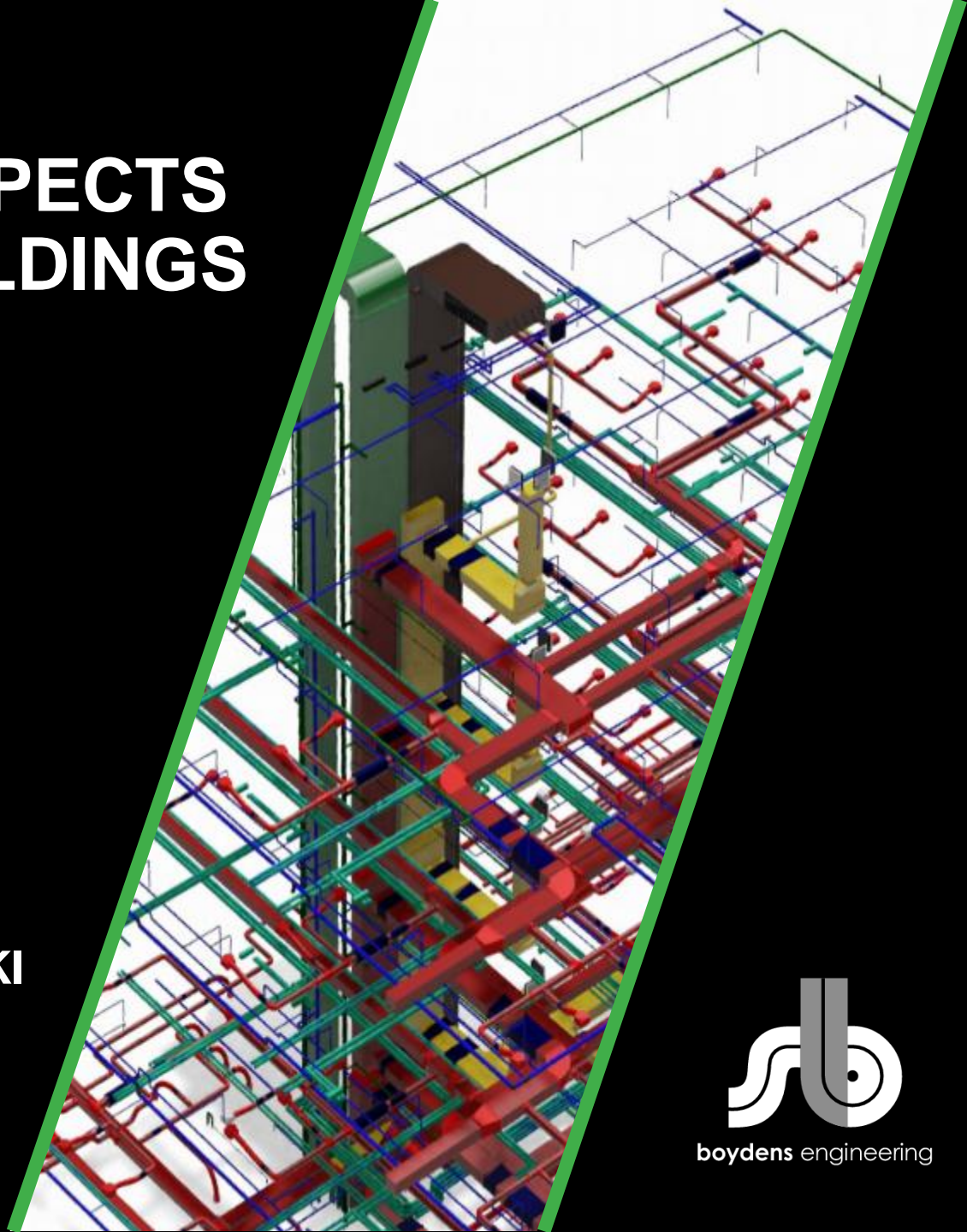
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SMART BUILDINGS

DEFINITION



SMART BUILDINGS

There is no official definition.



SMART BUILDINGS

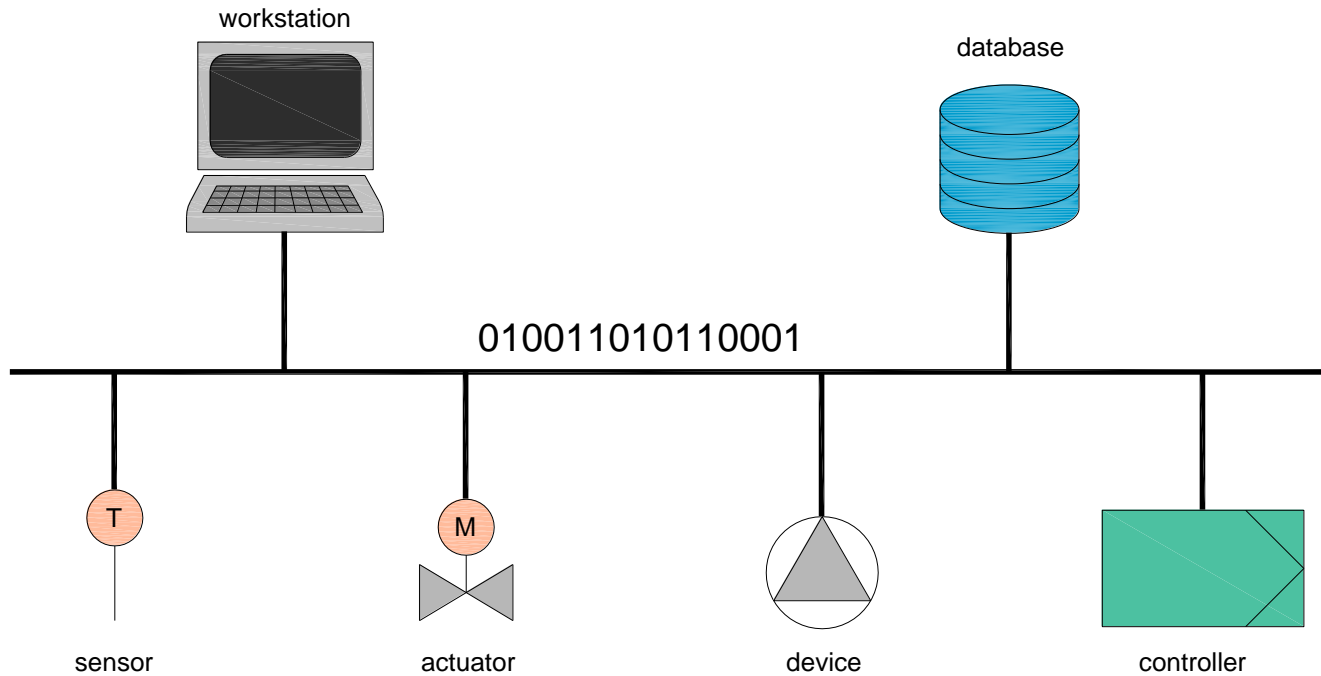
DEFINITION

Engineers have to anticipate... as
always!



SMART BUILDINGS

20+ YEARS AGO





SMART BUILDINGS

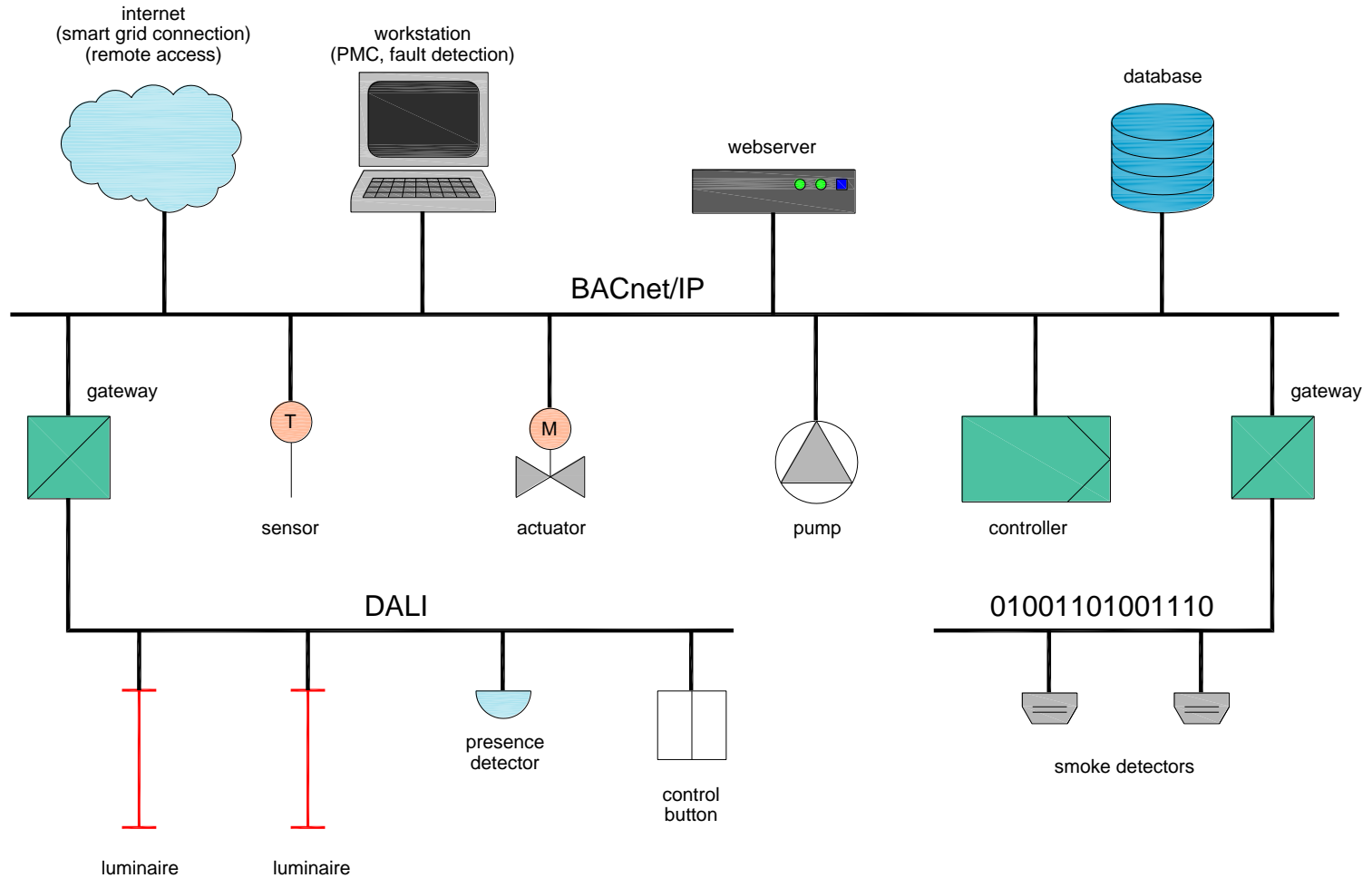
NOW AND THEN

The difference between then and now...

- internet
- open protocols
- integration of other services
 - more intelligent devices



SMART BUILDINGS NOW AND NEAR FUTURE





SMART BUILDINGS

PRESENTATION FOCUS



- internet
- communication protocols
- application programs

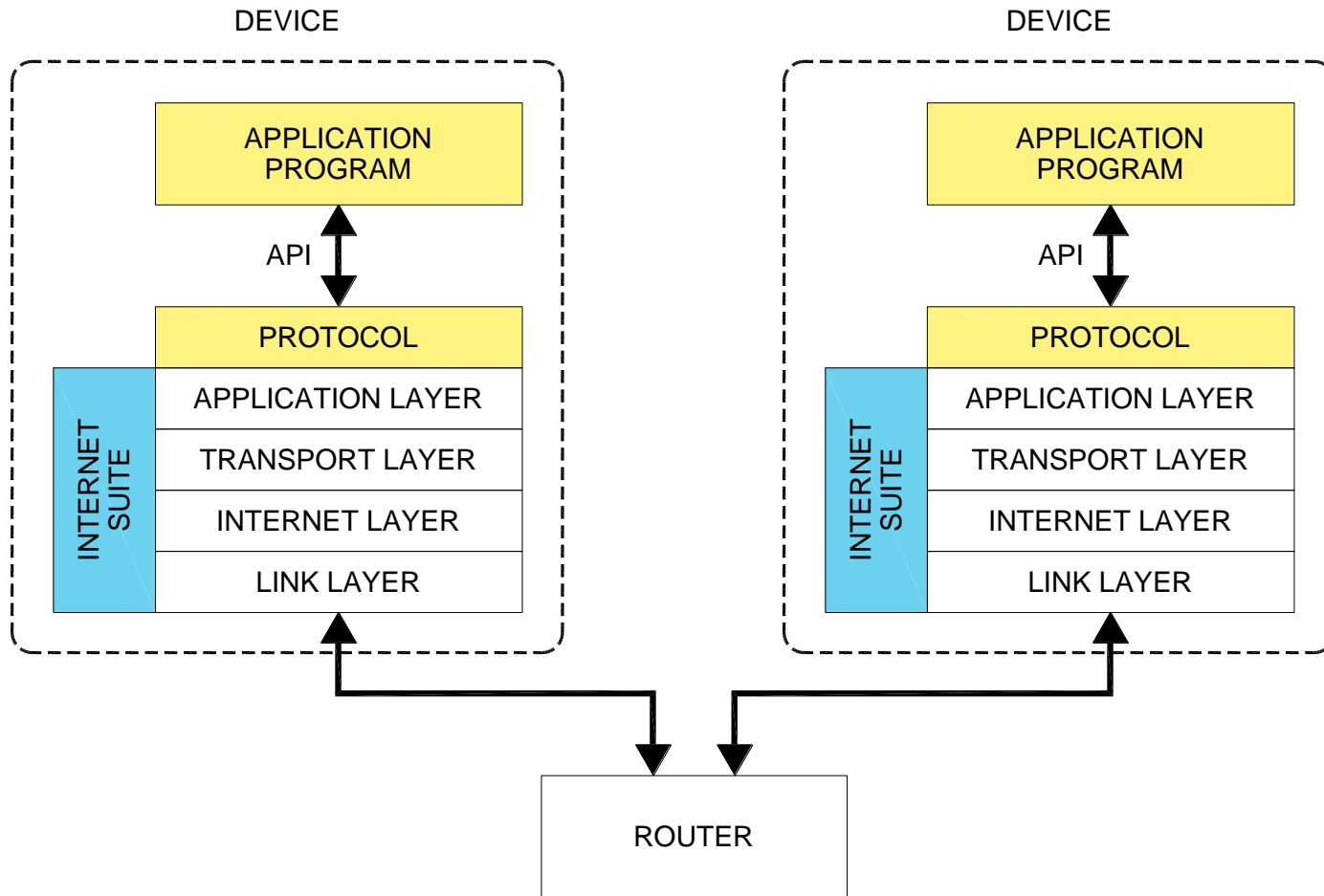


COMMUNICATION OVER INTERNET PROTOCOL

IT PRIMER (FOR HVAC ENGINEERS)



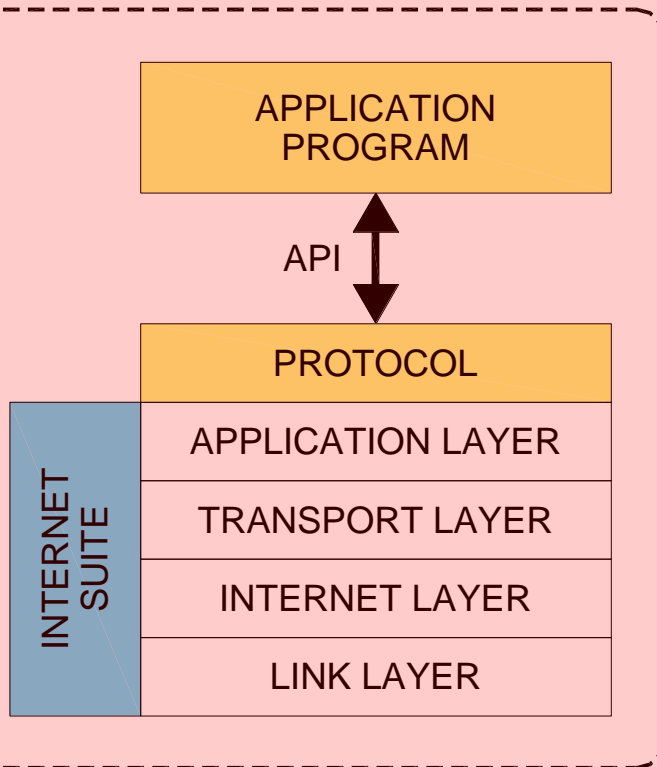
COMMUNICATION OVER INTERNET





COMMUNICATION OVER INTERNET

DEVICE

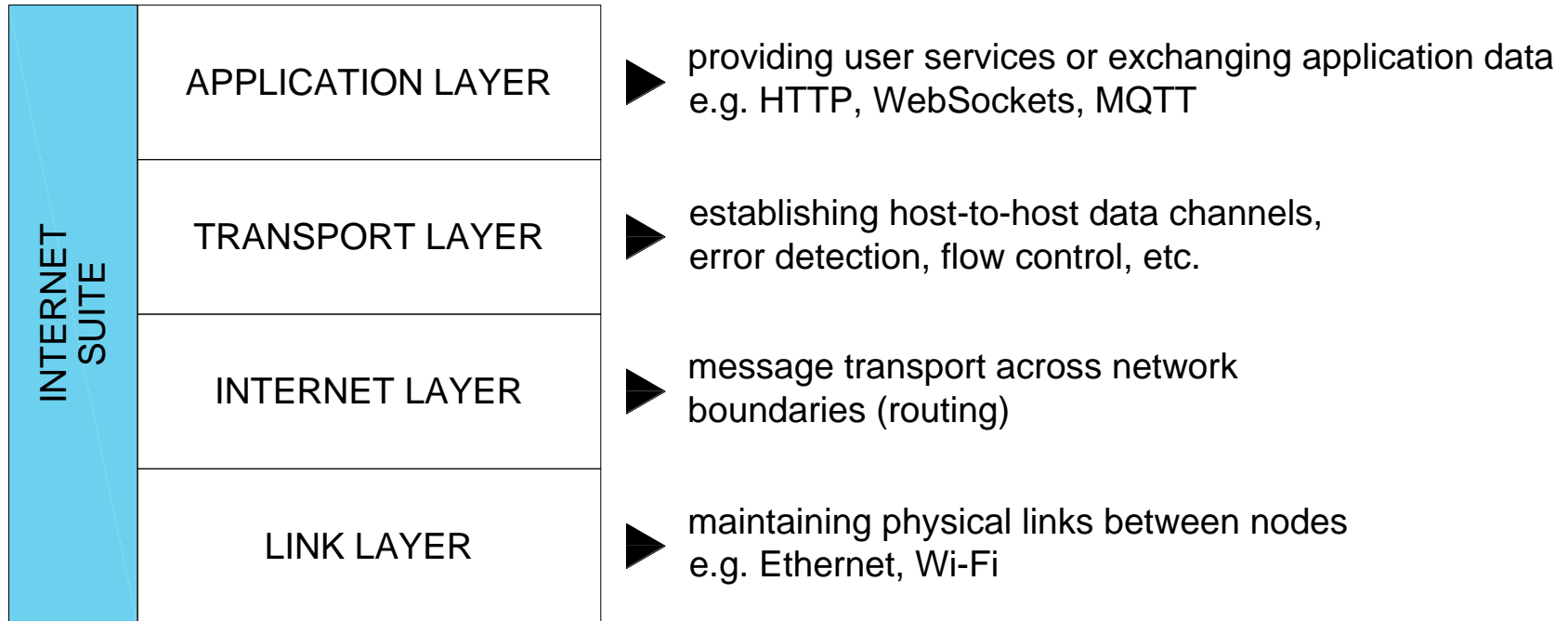


DEVICE

- any equipment that is connected to the internet and communicates using a communication protocol
- PC, controller, sensor, actuator, etc.



COMMUNICATION OVER INTERNET

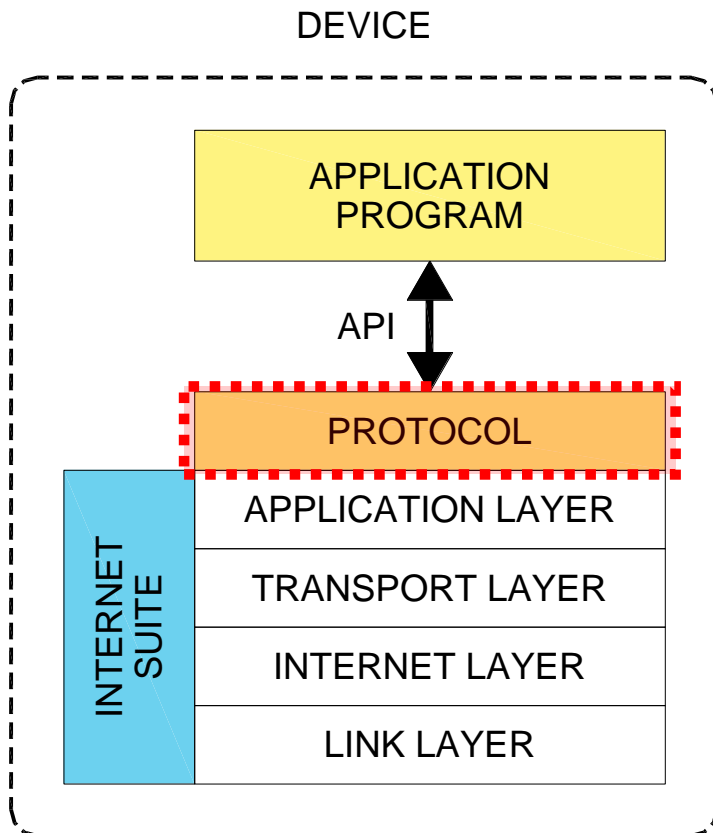




COMMUNICATION OVER INTERNET

PROTOCOL

- protocol implemented as software program
- e.g. open source BACnet stack

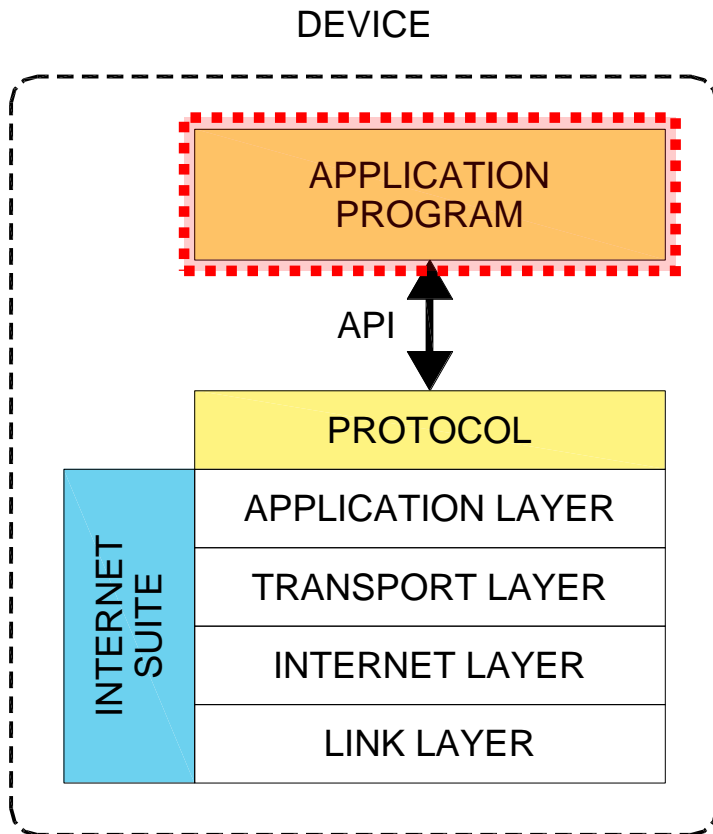




COMMUNICATION OVER INTERNET

APPLICATION PROGRAM

- translating local physical I/O to software variables passing them to the protocol or vice versa (e.g. controllers)
- using API to acquire data from the network and process it (e.g. BMS displays, databases)



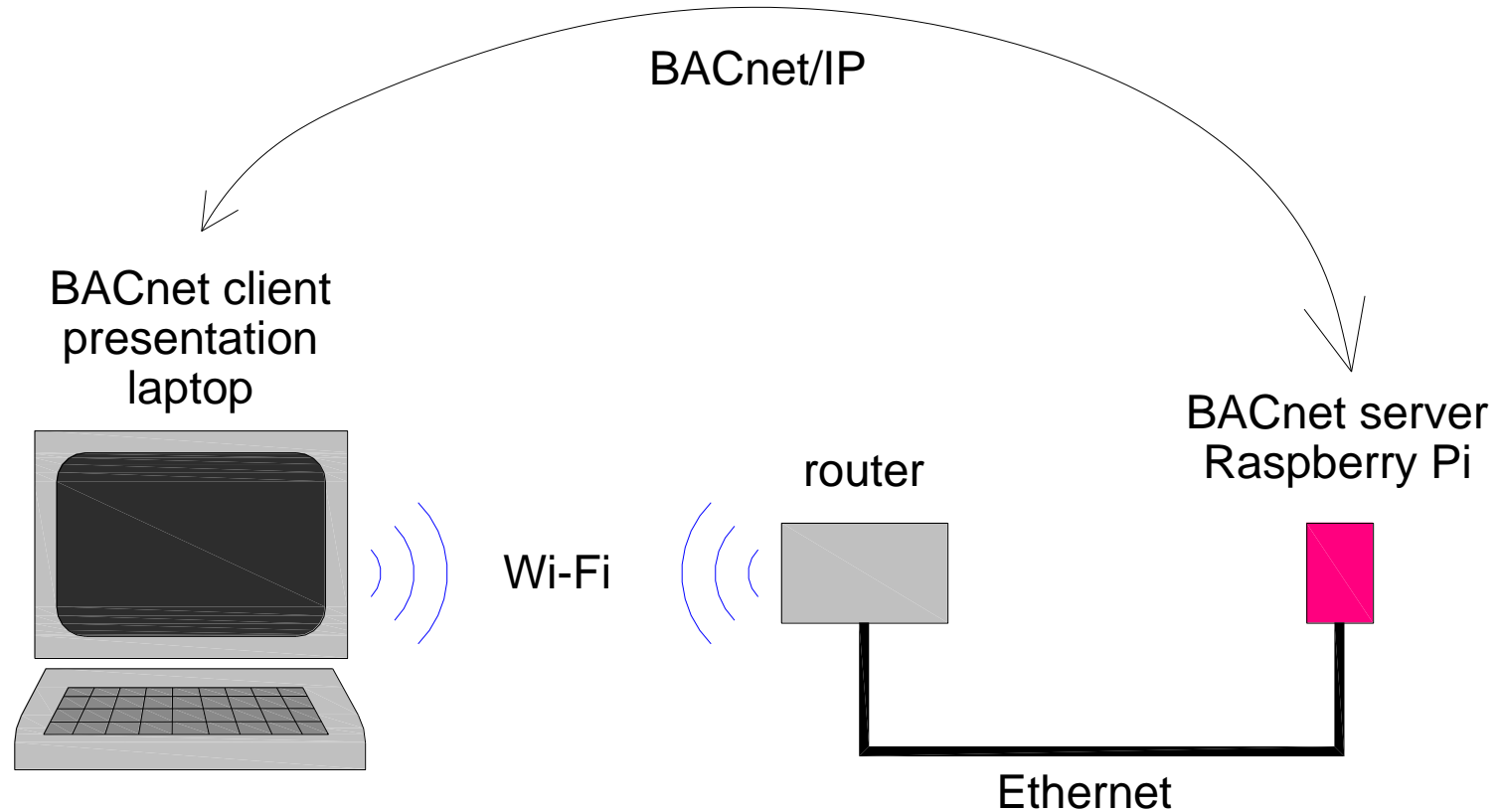


COMMUNICATION DEMONSTRATION

DEMO CASE



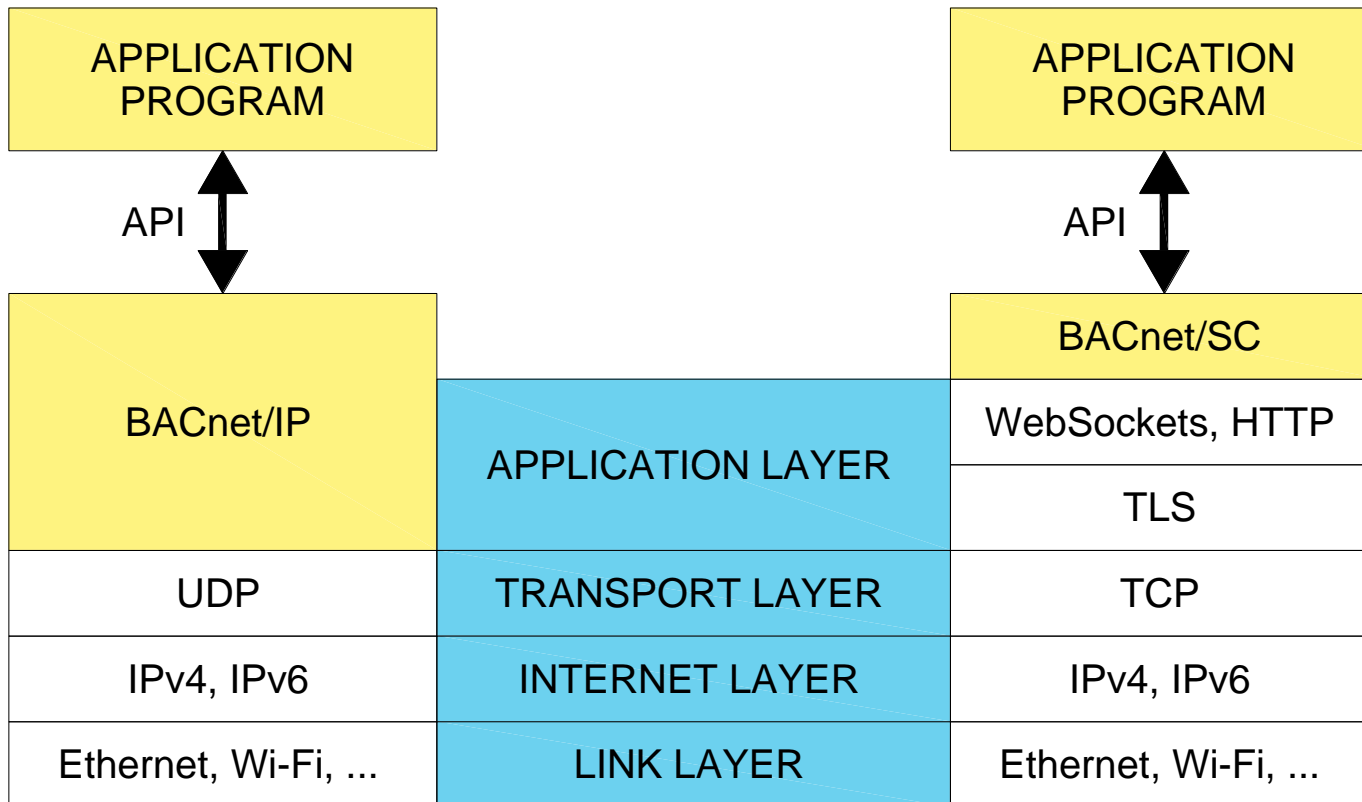
DEMONSTRATION CONFIGURATION





COMMUNICATION

BACnet/IP vs BACnet/SC





SMART BUILDINGS

TECHNICAL ASPECTS

THANK YOU!