Introduction to Industrial Communication

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Topics

- What protocols do you know?
- OSI model
- Fieldbus
- Profinet
- OPC-UA

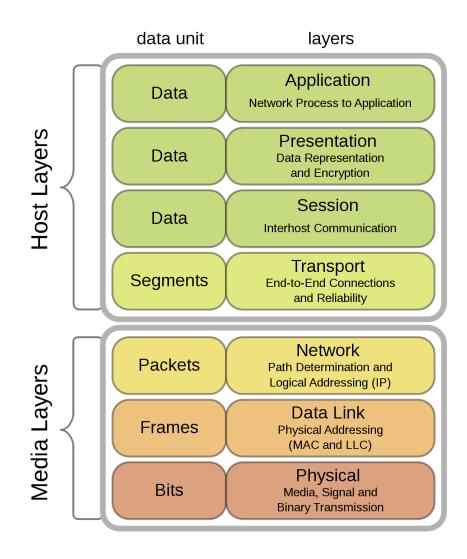


What protocols do you know?



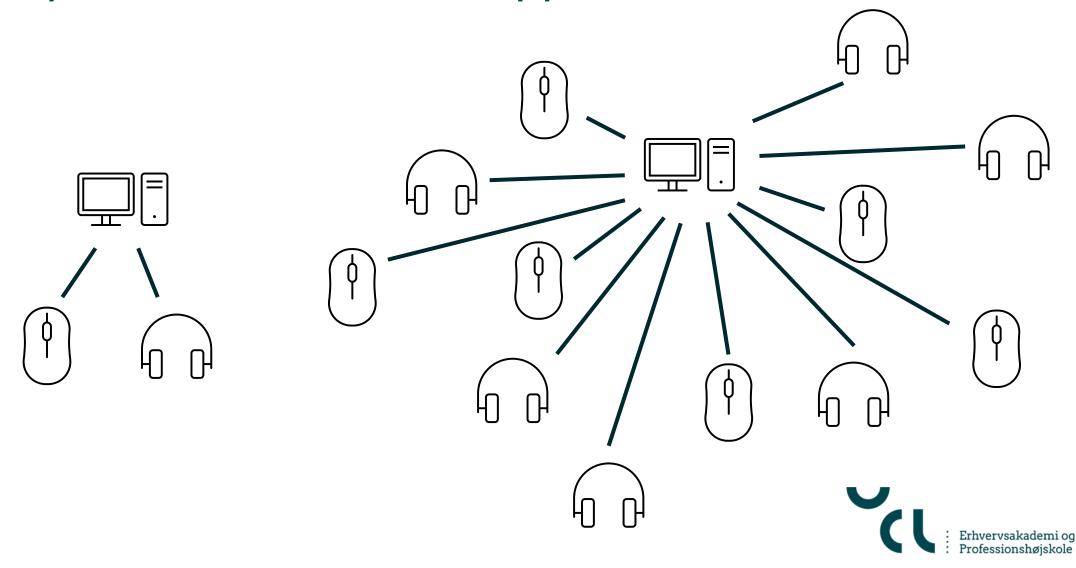


OSI model

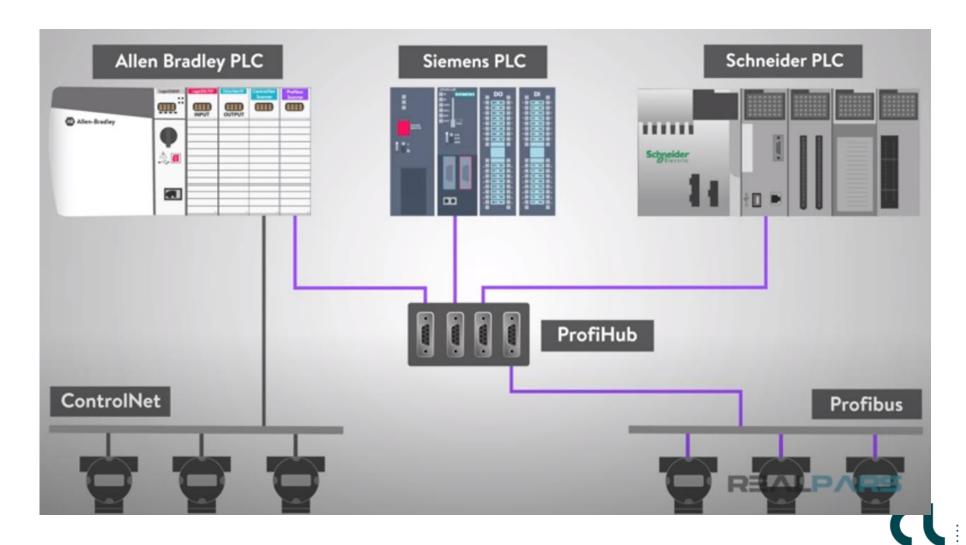




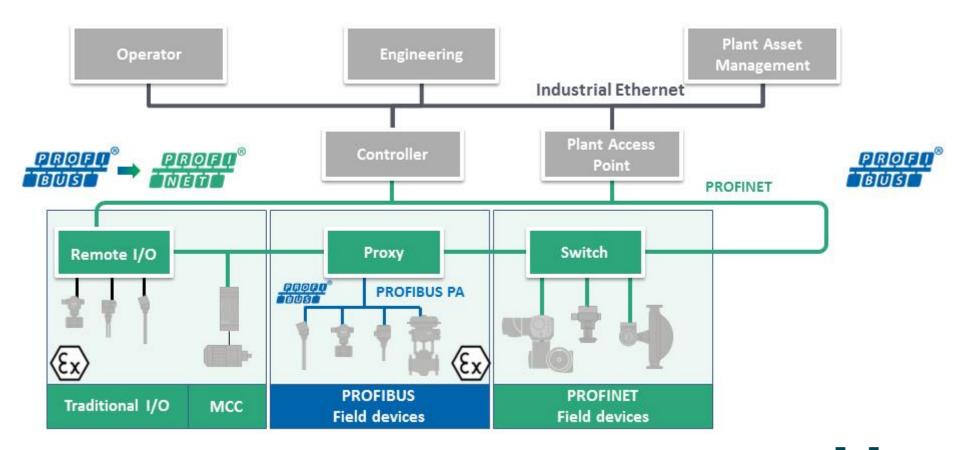
The problem in industrial applications



Fieldbus

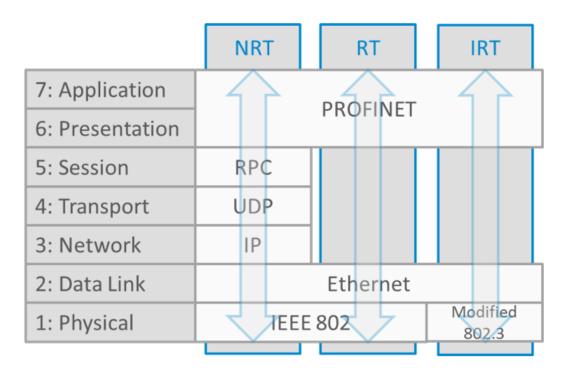


Profinet





Profinet in relation to OSI





Profinet GSD files

```
<ModuleItem ID="ID Mod 13" ModuleIdentNumber="0x00000032">
 <ModuleInfo>
   <Name TextId="TOK_TextId_Module_URI_Joints"/>
   <InfoText TextId="TOK InfoTextId Module URI Joints"/>
   <HardwareRelease Value="1.0"/>
   <SoftwareRelease Value="1.0"/>
 </ModuleInfo>
 <VirtualSubmoduleList>
   <VirtualSubmoduleItem ID="13" SubmoduleIdentNumber="0x0001" API="0">
     <IOData>
       <Input Consistency="All items consistency">
          <DataItem DataType="OctetString" TextId="TOK Input DataItem 3" Length="104" UseAsBits="true"/>
       </Input>
     </IOData>
     <ModuleInfo>
       <Name TextId="TOK TextId Module URI Joints"/>
       <InfoText TextId="TOK InfoTextId Module URI Joints"/>
     </ModuleInfo>
   </VirtualSubmoduleItem>
 </VirtualSubmoduleList>
</ModuleItem>
```



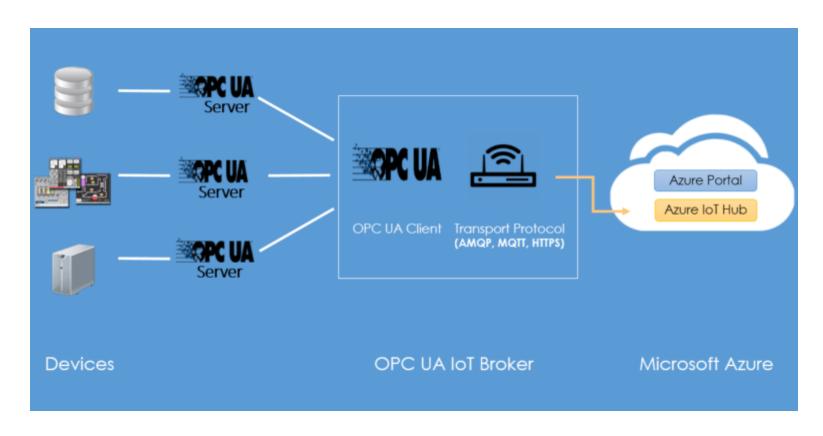


OPC UA

• First-generation Before OPC **OPC** technology HMI-2 HMI-1 HMI-1 HMI-2 OPC OPC Company A Company A communication communication Windows PC Company B Company B communication communication **OPC** Server Company C Company C Company A Company B Company C communication communication communication Company Company Company Company Company Company

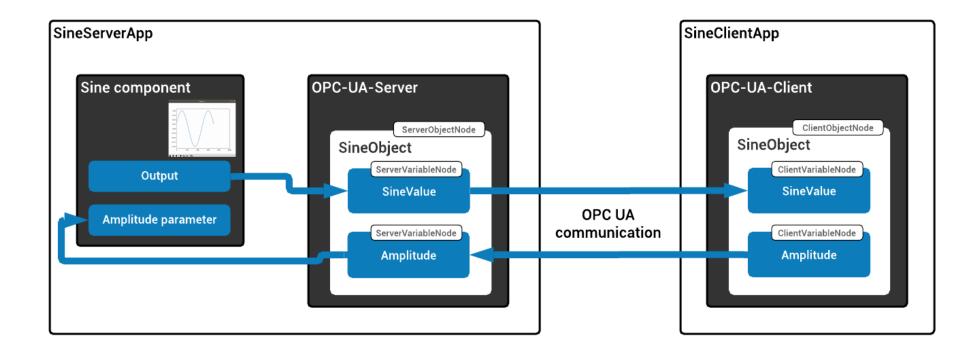


OPC UA – Servers and Clients





OPC UA – Synchronizing data





Exercises

Break and exercises!

