

# Protocol Suites and Layering

David Morgan

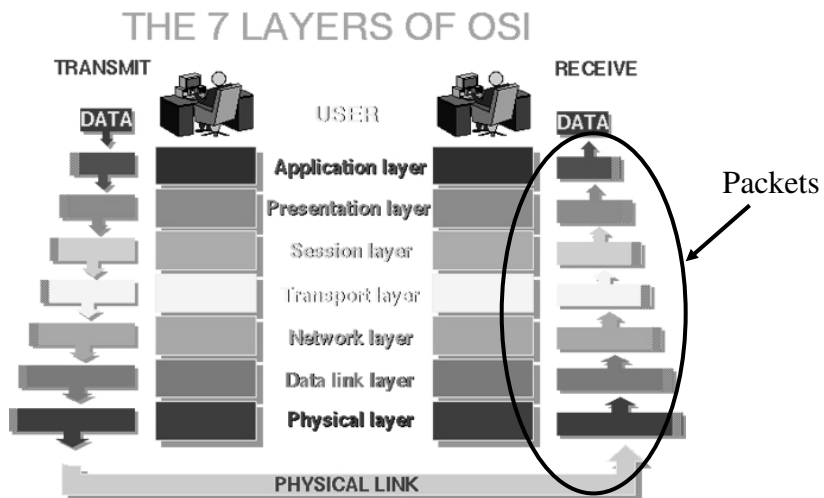
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## Benefit of a “suite”

- Division-of-labor motivated
- Led to functional “layer” concept
- IP excelled at conjoining heterogeneous nets
- Nets therefore all implemented IP

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# Functional layering



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# Functional layering

NAIROBI

Kenyan philosopher

Swahili linguist

Delivery agent

TOKYO

Japanese philosopher

Japanese linguist

Delivery agent

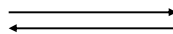
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# Philosophical layer

NAIROBI

TOKYO

Kenyan philosopher



Japanese philosopher

Nature of man  
or  
Good versus evil  
or  
The existence of God

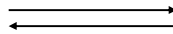
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# Linguistic layer

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TOKYO

Swahili linguist

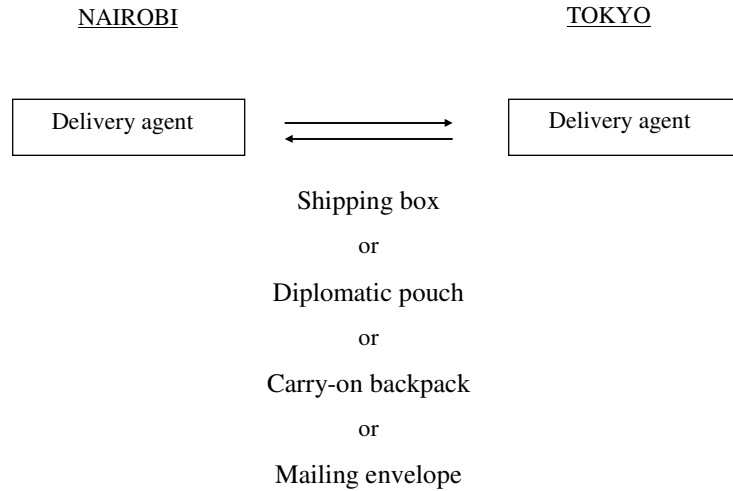


Japanese linguist

Arabic  
or  
Navajo  
or  
French  
(or even,  
Swahili or Japanese)

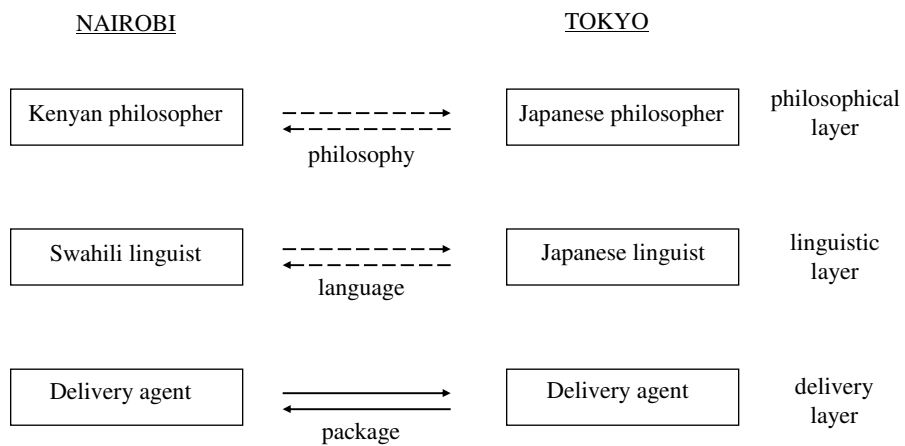
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# Delivery layer



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# Functional layering

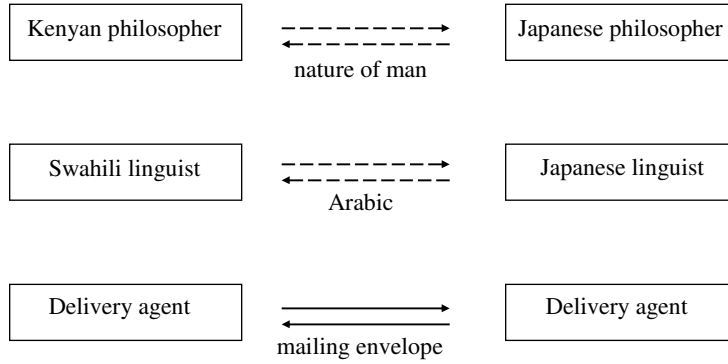


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# One possibility ...

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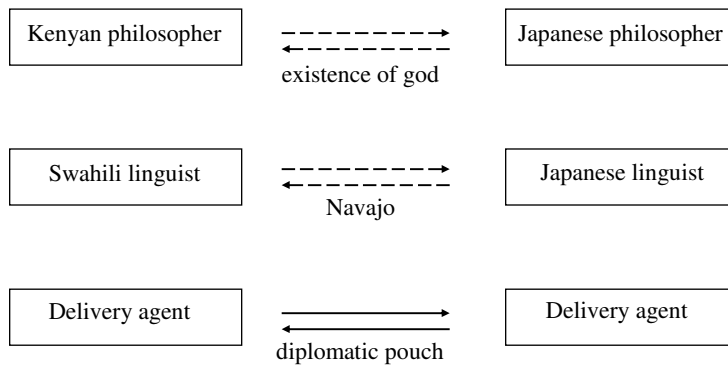


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# ... another possibility ...

NAIROBI

TOKYO

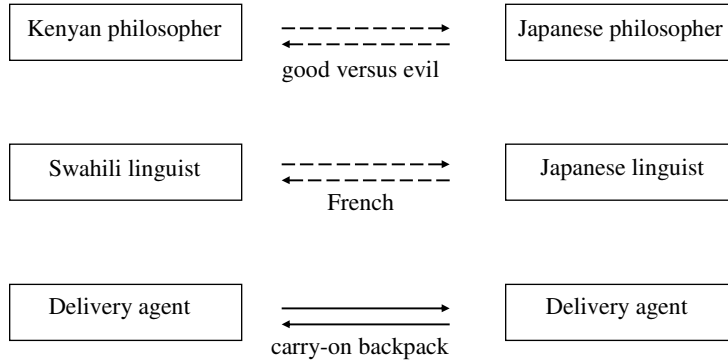


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## ...yet a third possibility ...

NAIROBI

TOKYO

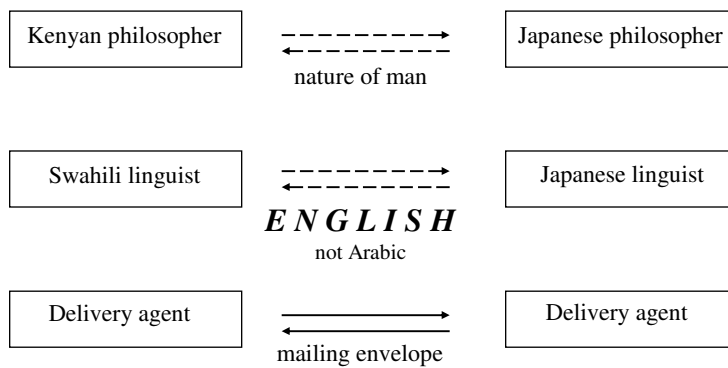


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## More likely ...

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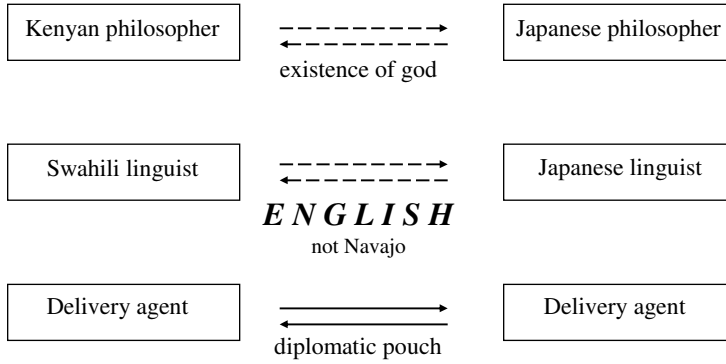


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... and ...

NAIROBI

TOKYO

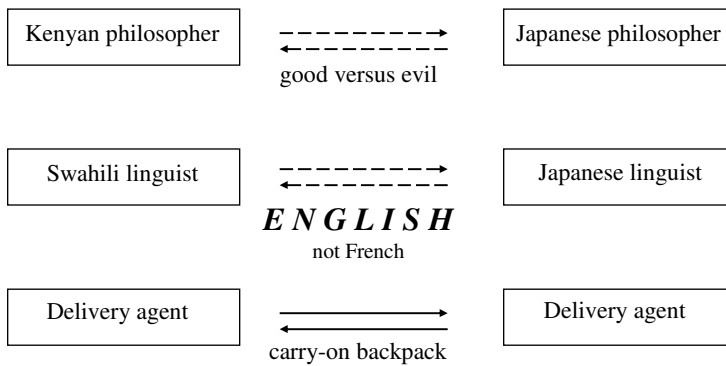


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... and

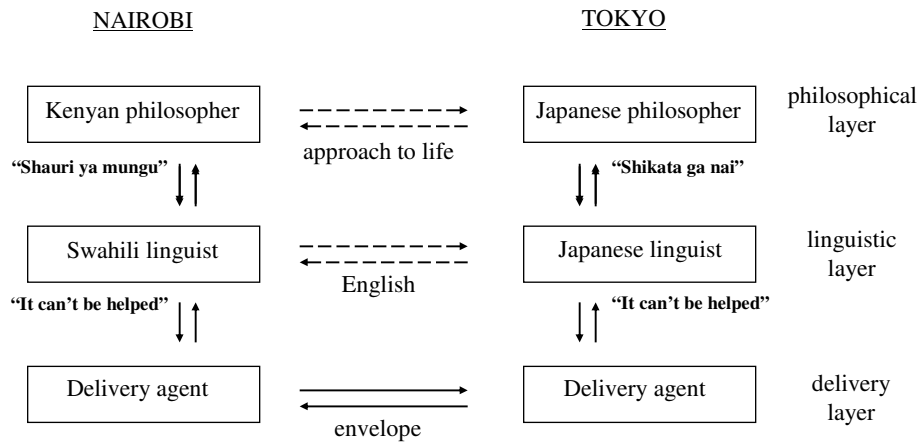
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# Functional layering



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## English

- Carries any philosophical discussion
- Carried by any delivery technique
- "Language of commonality" - has become the standard for doing so

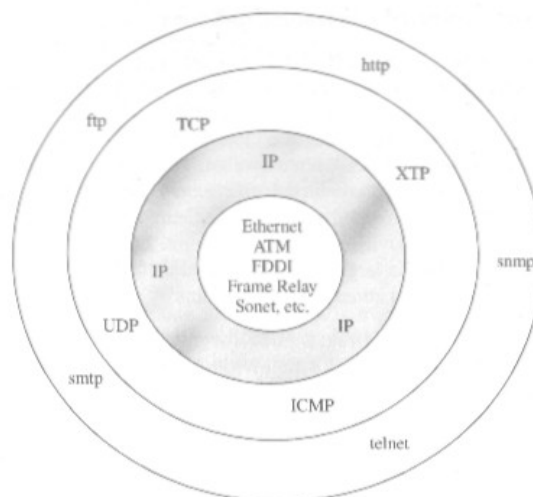
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## IP is like English

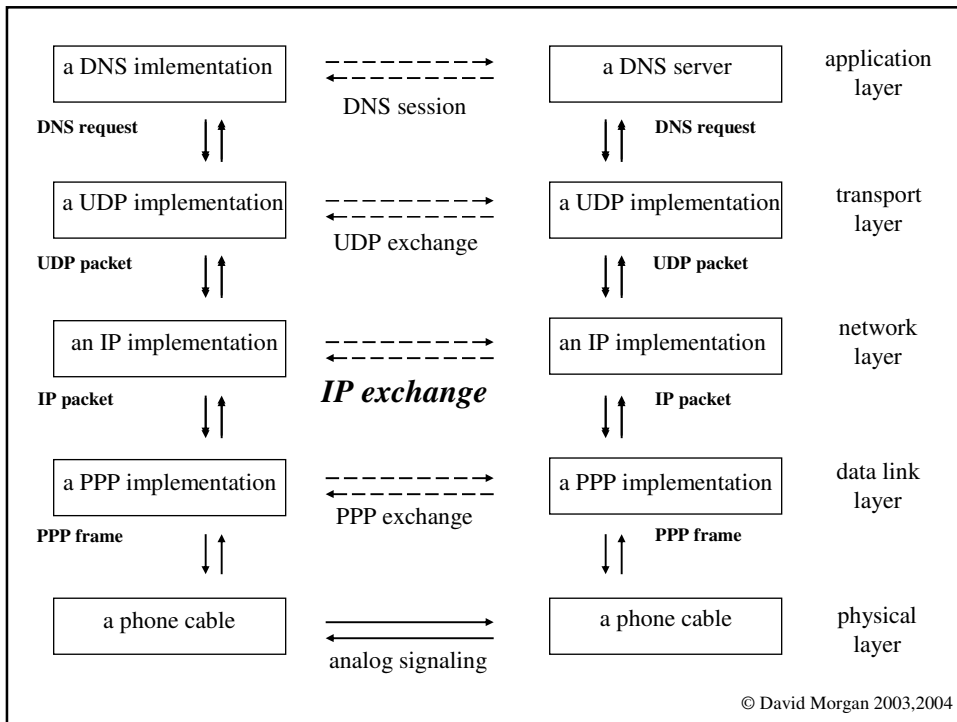
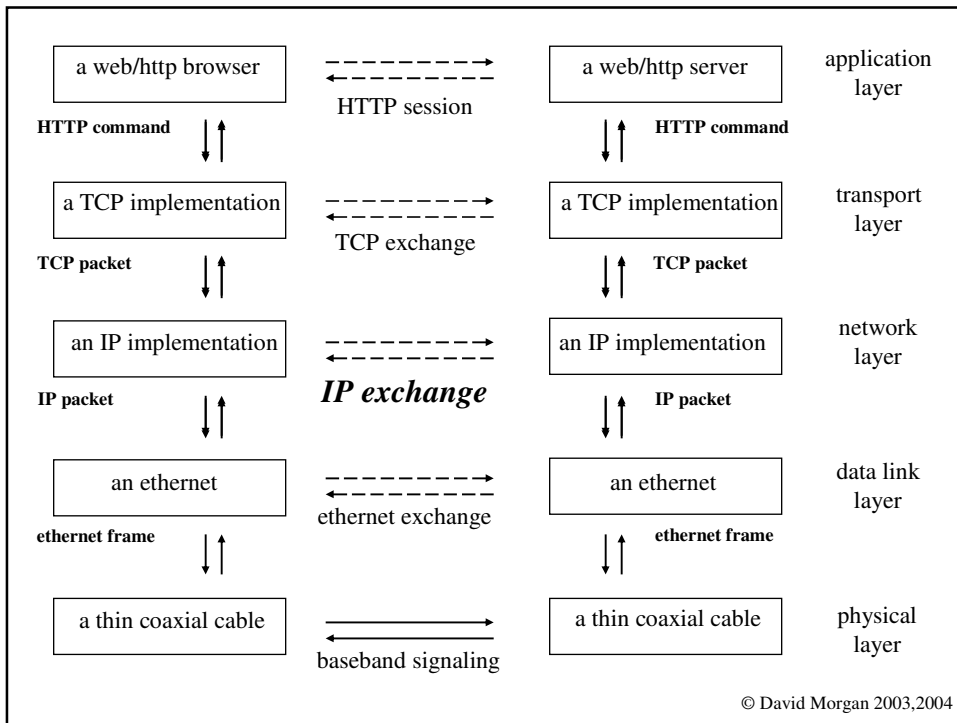
- Carries any application and end-to-end protocol (ftp, smtp, http...TCP, UDP)
- Carried by any data link and physical technique (ethernet, ATM, frame relay, wireless)
- “Layer of commonality” - has become the standard for doing so

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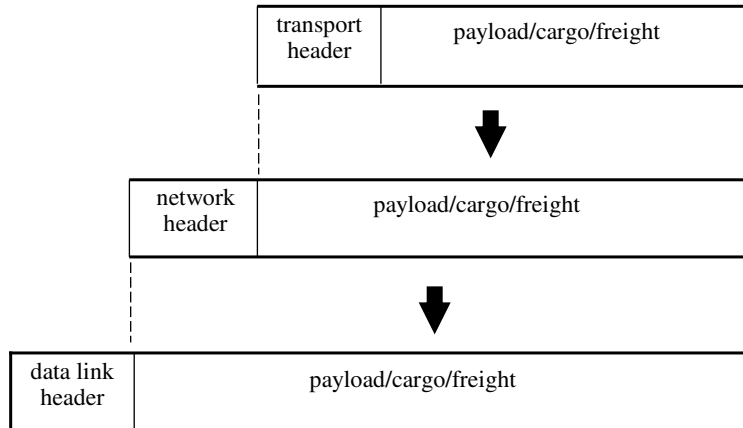
## IP - common protocol



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# Layer-wise encapsulation



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