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**Jürgen Schönwälder**  
**International University Bremen, Germany**

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# Avoiding Complexity through Standards

**Jürgen Schönwälder**  
**International University Bremen, Germany**

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# Complexity of Standards

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# Observations - 1

“It is always possible to agglutenate multiple separate problems into a single complex interdependent solution. In most cases this is a bad idea.” [RFC 1925]

“Simplicity Principle: complexity must be controlled if one hopes to efficiently scale a complex object.” [RFC 3439]

# Observations - 2

"The evolution of protocols can lead to a robustness / complexity / fragility spiral where complexity added for robustness also adds new fragilities, which in turn leads to new and thus spiraling complexities." [John C. Doyle]

"What applies to small systems does not apply to large ones." [DeRemer's law]



# Observations - 3

"Every old idea will be proposed again with a different name and a different presentation, regardless of whether it works." [RFC 1925]

# Increasing complexity

SNMPv1 (RFC 1157)	8573 words
SNMPv2c (RFC 1901, 1905-06)	12797 words
SNMPv3 (RFC 3411-3417)	91077 words
Radius (RFC 2138)	15205 words
Diameter (RFC 3588)	43334 words



# So what to do?

Divide and conquer:

- secure transports versus builtin security
- end-to-end argument
- NGN (transport vs. application stratum)

Simplification:

- common rules (BCPs) how to do things
- harmonized “standardized” education
- common “standardized” testbeds
- common evaluation mechanisms



# Conclusions

“With sufficient thrust, pigs fly just fine.”  
[RFC1925]

**But ...**

"This does not mean we can afford the fuel costs". [Randy Bush @ NANOG]