

Panel: Capacity Machines

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What's left to say?

From Capability Session Today

- Liked: AI's comparison of Hubble telescope vs binoculars.
 - However...
 - Hubble is *useless* to most
 - Binoculars *useful* to most
- Disliked: implied by both Horst & AI
 - Quality of science → Capability Computing, or
 - Capability Computing → Quality of science
 - If desktop produces good science, is that Capability?
 - If not on “Capability” machine, then science can not be quality?

We must choose our words very carefully!

What's in a Name?

- Capability *Machines* do not exist
- Capacity *Machines* do not exist
- Capability *Computing* is a style choice
- Capacity *Computing* is a style choice

The 5 questions...

1. What are the principal factors that distinguish capacity systems from other forms of computing systems?

- How much of a premium you paid
 - Lexus vs Toyota
 - Functionality same
 - Packaging differs
 - Bragging rights
 - TOP500, “High tech pissing contest” Douglas Eadline, Linux Magazine, October 2005
- It works “out of the box”
- Numerous hardware vendors *with* solutions
- Software vendors exist and some even make a profit
- Not an exclusive user club

1. What are the principal factors that distinguish capacity systems from other forms of computing systems?

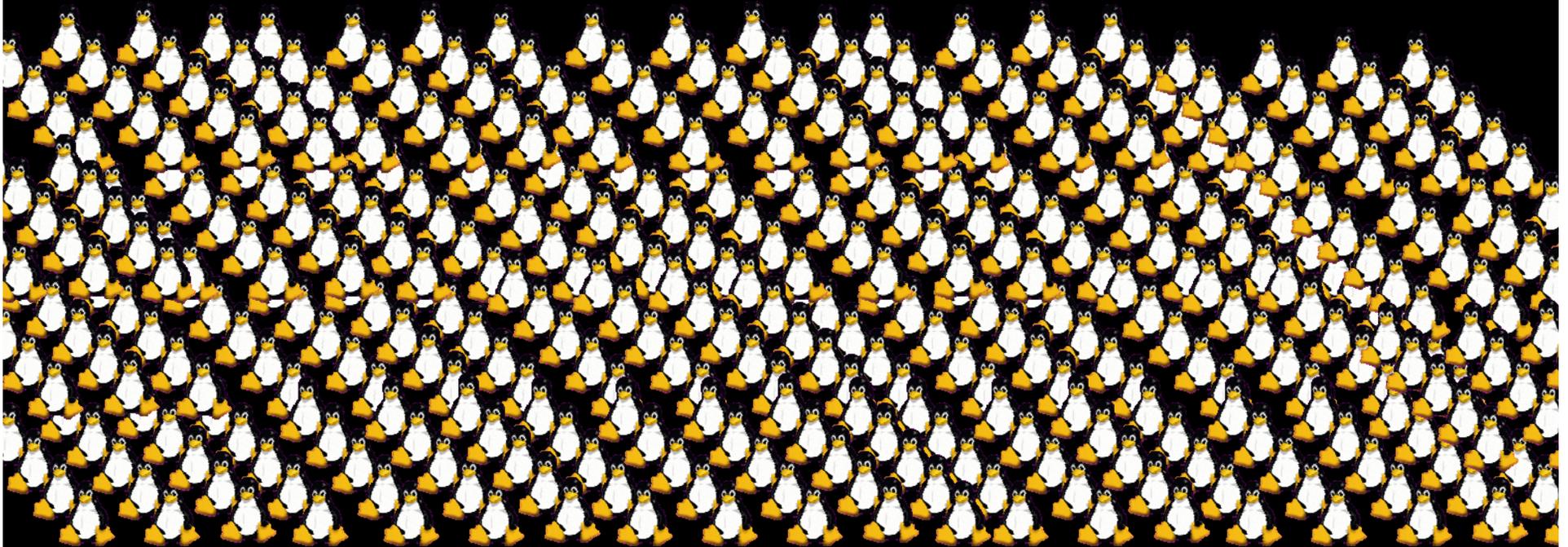
- Function / technology wise?

Today?

It's the Network!

2. What is the role and impact of capacity computing for current and future scientific problems?

- Army of ants
make that penguins...

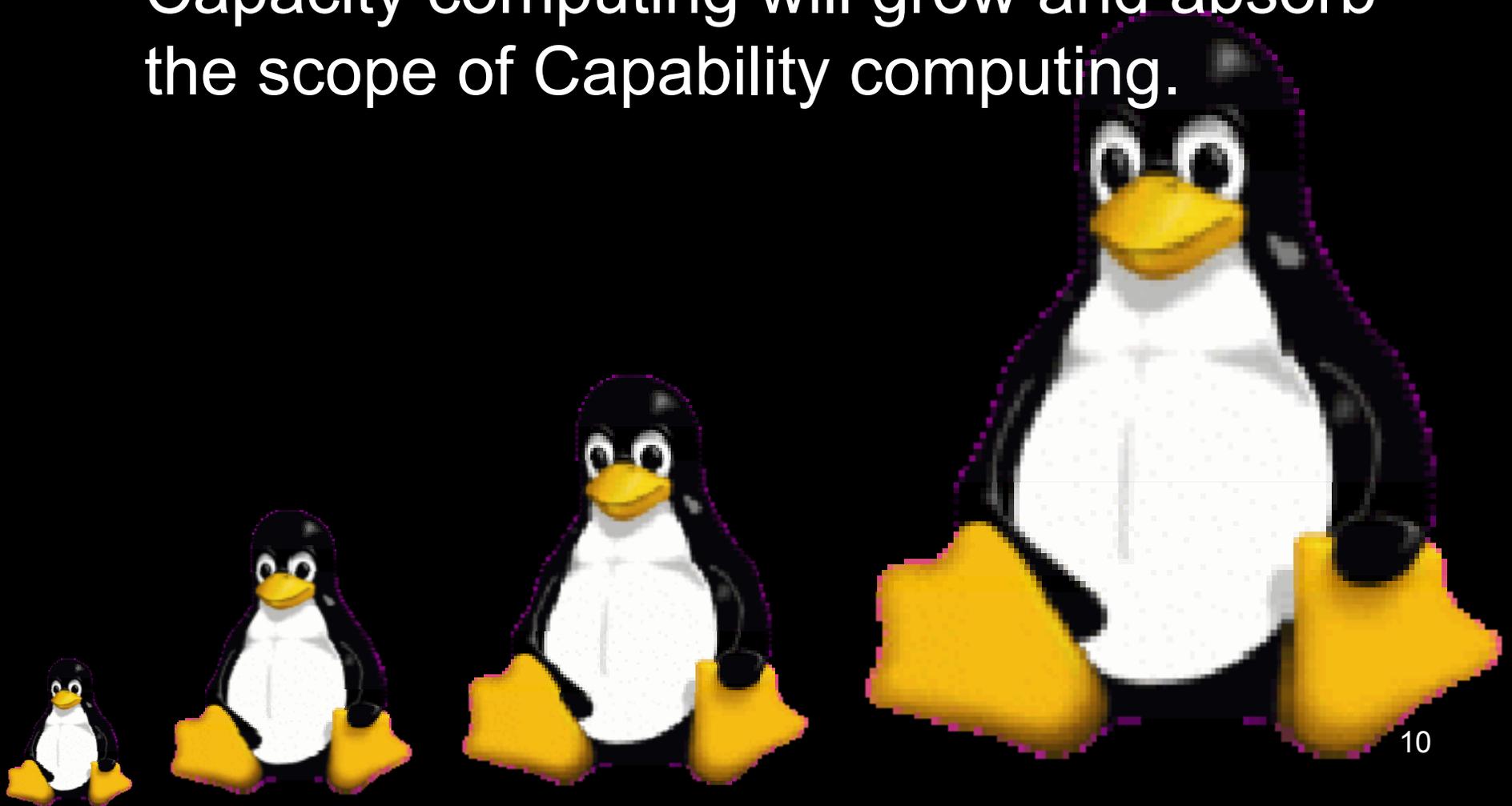


3. What technical challenges confront the continued growth of capacity computing performance?

- Scalability issues
 - Software and hardware
- RAS issues
 - Software and hardware
- Management issues
 - What is “best practices”
 - Still an open question, or
 - Solved in a “site specific” manner
- Power
- Cooling
- Space
- Programming models
- Education
 - Multi-threaded, parallel & distributed computing

4. What will be the dominate directions for future generation capacity computing and system types?

- Capacity computing will grow and absorb the scope of Capability computing.



5. Will the current division between capacity and capability computing be retained over the next decade or will there emerge a different useful distinction in form and function?

- There will be no distinction between the two other than perhaps a *policy* for use and a *name* for funding.

I have seen the future and it is today...

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