Modern C++ - Why and What

JLM Charedi Tech Meetup

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Thunderbolt™ SW team, Intel

Agenda

- Modern C++ - Meaning

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  - To make sure we use the same terminology

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  - "Not your father's C++"
    - (Herb Sutter's title for a presentation in Lang.NEXT 2012)

Outline

Part I

Modern C++ - Meaning

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- `http://en.cppreference.com/w/cpp/language/history`

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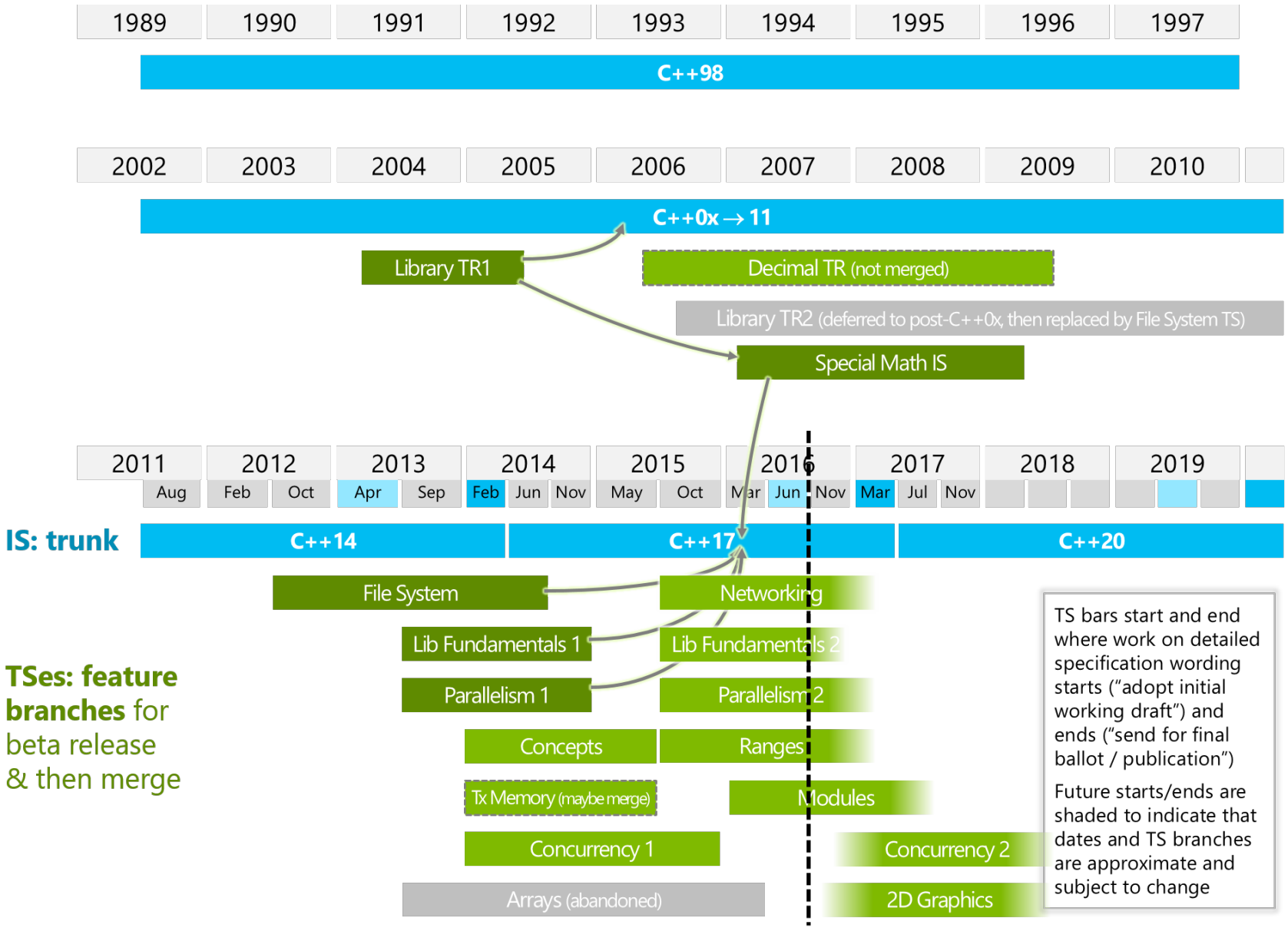
  - IDEs, static and dynamic analyzers, etc.

Perspective



https://herbsutter.com/2016/06/30/trip-report-summer-iso-c-standards-meeting-oulu/

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Not only 'what', it's also about the 'how'

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- Generally: the common wisdom the C++ developer community collected over the years

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Part II

Modern C++ - Why?

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The Free Lunch Is Over

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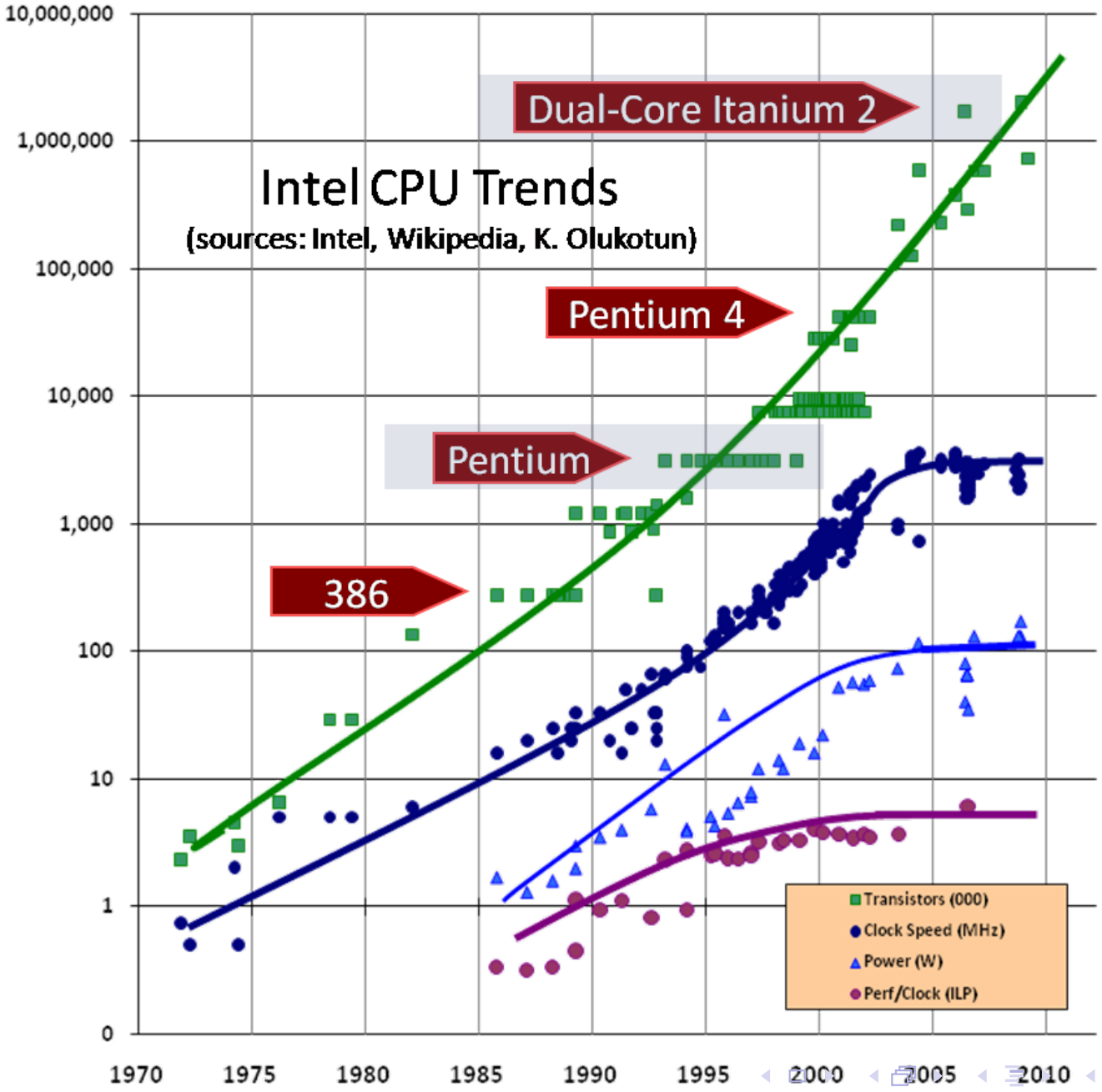
- Key observation was simply looking at the following graph:

CPU graph


Intel CPU Trends
(sources: Intel, Wikipedia, K. Olukotun)
Dual-Core Itanium 2
Pentium 4
Pentium
386
10,000,000
1,000,000
100,000
10,000
1,000
100
10
1
0
1970
1975
1980
1985
1990
1995
2000
2005
2010
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  - Do more with the same for better experience

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- What it means Managed / Unmanaged?

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Part III

Modern C++ - What?

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  - Implicit conversions

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- Sometimes they also improve performance (but in no case hurt performance)

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```
std::map<std::string, int> m;

// Fill with data ...

for (auto i = m.begin(); i != m.end(); ++i)

{

    const std::pair<std::string, int>& entry = *i;

    // Work with entry

}
```

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- (We'll see it in use in the following code examples)

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- Further expanded by structured binding in C++17

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Part IV

Summary

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  - (A bit of) What

Part V

References

References

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- Ask me for more references, articles, books and videos

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