C++ Club UK Meeting 118

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Firsts in 2020 (or, A little dose of good news)

- Herb Sutter
  - Reddit

C++20 ISO standard published

- ISO
  - Reddit

B. Stroustrup on The Continuing Evolution of C++

- Video on IDA
  - Reddit

NoDiagnostic Required podcast from JetBrains

- Twitter: ndr_cpp
- YouTube: nodiagnosticrequired

Concepts appreciation thread

- Reddit

C++ executors

- Reddit
  - CppCon 2019: Eric Niebler, David Hollman "A Unifying Abstraction for Async in C++"
  - A Unified Executors Proposal for C++ | P0443R14
  - libunifex (Facebook)

Do you use C++ in your day job? If so, what did it take to get there?

- Reddit

Easily currying functions in C++

- Reddit

```
 1  // Existing, non-curried function
 2  auto f(int a, int b, int c) noexcept -> int {
 3      return a * b * c;
 4  }
 5
 6  auto g = fn::curry(f); // g is the curried form of f
 7
 8  int main() {
 9      return g(2)(5)(10); // returns 100
10  }
```

C++ and passing by value

- Matt Godbolt
  - Reddit

Cheerp 2.6 rc1: C++ compiled for the Web

- Carlo Piovesan

repr: return printable value
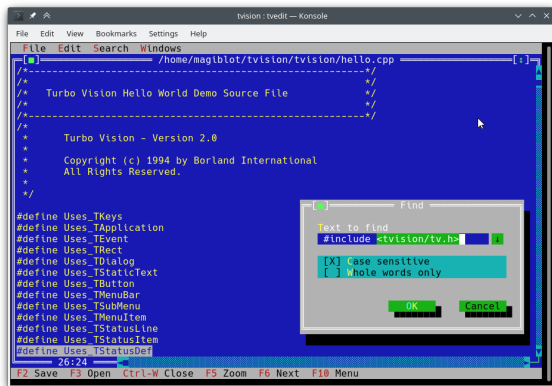
- GitHub
  - Reddit

The problem with C

- Corentin Jabot
  - Reddit
  - Reddit

Turbo Vision

A modern port of Turbo Vision 2.0, the classical framework for text-based user interfaces. Now cross-platform and with Unicode support.

- GitHub
  - Reddit

Fold expressions work inside constraints

- Reddit

```
1  template <template <typename> class FooT, typename... T>
2  requires (... && Bar<FooT<T>>) struct Baz {};
```

Without fold expressions:

```
1  template <template <typename> class FooT, typename... T>
2  requires([]() {
3    std::array arr = std::array{Bar<FooT<T>>...};
4    return std::reduce(arr.begin(), arr.end(), true,
         std::logical_and<bool>{});
5  }()) struct Baz {};
```

consteval-huffman

A C++20 utility for compressing string literals at compile-time to save program space. The compressed data can be decompressed at run-time through the use of a decoder that follows std :: `forward_iterator` .

- GitHub (C++20, Public domain)
  - Reddit

```cpp
auto data = "This is my string of data"_huffman;
```

Taskflow 3.0.0

A General-purpose Parallel and Heterogeneous Task Programming System

- Home page
  - GitHub (C++17, MIT)
    - v3.0.0
  - Reddit

Project from scratch in C++ (for beginners)

- Reddit
  - YouTube
  - Blog

Game dev C++ vs Regular C++

- Reddit

> *Some companies are stuck on the 98 standard, may God have pity on their souls, and others have weird requirements to avoid things because a manager had an issue with them 10 years ago.* ⇒

Bona - A C++20 based modern file information viewer

- Reddit

Wrapping C++ for use in Swift

- Reddit

A Small Open Source Game In C++

- Preshing
  - Reddit
  - GitHub
  - Code review

That tongue animation :-)

Graphics Library for simple 2D games

- Reddit
  - SFML
  - Allegro
  - SDL – C
  - olcPixelGameEngine

is::Engine - C++ SFML game engine

- Reddit announcement

Interactive C++ with Cling

- LLVM Blog

Calendar and Time-Zones in C++20: Time of Day

Rainer Grimm

FTL - A functional template library for containers processing in C++

- GitHub
  - Reddit

FTL is a C++17-based library that provides a more convenient API for collections processing. The API is heavily inspired by the Rust programming language.

```cpp
const auto totalVolume = cityTrees.iter()
  .filter([](const auto &tree) { return tree.kind == Tree::Oak &&
      tree.diameter > 25; })
  .map([](const auto &tree) { return tree.volume(); })
  .sum();
```

Compiling C/C++ on Apple M1

- Boris Kolpackov
  - Reddit

Linux developer going Windows

- Reddit

BinOpt — A Library for Self-guided Runtime Binary Optimization

- GitHub (LGPLv2.1+)

Conditionally Trivial Special Member Functions

- Sy Brand
  - Reddit

Best framework to create HTTP server

- Reddit

Boost 1.75

- Release notes
  - Reddit

C++ Russia 2020 Moscow

- Playlist on YouTube

mocxx: a versatile C++ function mocking framework based on Frida, by Guardsquare

No macros! Doesn't support mocking virtual functions yet.

- Reddit
  - GitHub (C++17, GPL-3.0)
    - Frida - Dynamic instrumentation toolkit for developers, reverse-engineers, and security researchers
  - Explanatory blog post at Guardsquare

Compile 1 Million Lines Of C++ In ~2 Minutes With A 16 Core Ryzen 9 5950x

- Embarcadero
  - Reddit

> *I love how a shitty, bug-ridden development environment that costs US$1359 for the most basic edition still requires you to buy a separate US$139 extension to enable parallel builds, a standard feature available on practically every other closed and open source compiler and build system out of the box for $0 extra.*

Dev-C++

A fast, portable, simple, and free C/C++ IDE for Windows, built in Delphi

- GitHub

Using std::list::splice to implement a LRU cache

- Article on nextptr
- std :: list :: splice

What should the state of a moved-from object be?

- Raymond Chen
  - Reddit

Reducing Memory Consumption in Visual Assist

- Blog post
  - Reddit

dont_deduce

- artificial::mind
  - Reddit

C++11

```
1 template <class T> struct foo_t { using type = T; };
2 template <class T> using foo = typename foo_t<T>::type;
```

C++20

```
1 template <typename T>
2 auto operator+(
3   vec3<T> const& a,
4   std::convertible_to<T> auto const& b
5 ) -> vec3<T>;
```

Writing a custom iterator in modern C++ (C++17)

- Article
  - Reddit

Obsolete function will stay

```
# you may think that this function
# is obsolete, and doesnt seem to do
# anything. and you would be correct.
# but when we remove this funtion
# for some reason the whole program
# crashes and we cant figure out why,
# so here it will stay.
```