



C++ZeroCost  
Conf <sup>\*/</sup>



# Новости РГ 21

Летняя встреча ISO WG21

Полухин Антон  
Эксперт разработчик C++

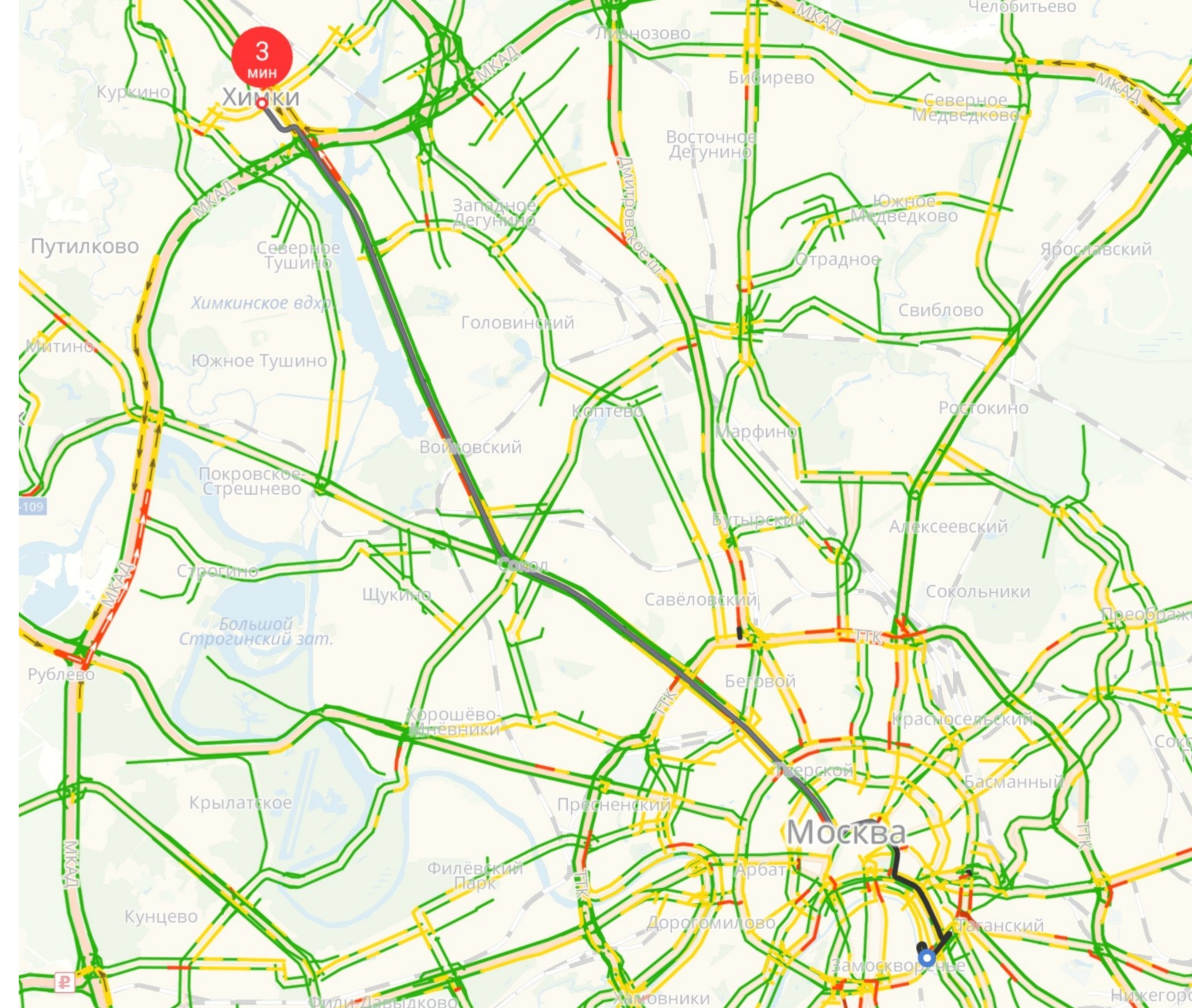


Yandex for **developers** \*//>



# Содержание

- #warning
- volatile
- constexpr
- static operator()
- float16\_t и bfloat16\_t
- [[assume(x)]]
- start\_lifetime\_as
- forward\_like
- print
- flat\_set / flat\_map
- mdspan



● C++2b

● C++23



ЭКОНОМ  
4₽



КОМФОРТ  
8₽



КОМФОРТ+  
9₽



БИЗНЕС  
34₽



МИНИВЭН  
15₽



ДЕТСКИЙ  
2₽

Комментарий, пожелания

Способ оплаты  
Команда Яндекс.Такси

Подъезд

+



# Совместимость с С

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```
#warning Prefer including A.hpp or B.hpp instead of AB.hpp
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```
// На подходе в C++26:  
constexpr std::byte image[] = {  
    #embed "avatar.png"  
};
```

# Совместимость с C

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```

```
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    #embed "avatar.png"  
};
```

```
// На подходе в C++26:
```

```
std::int128_t  
std::int256_t  
std::int512_t
```

volatile

# volatile

```
UART1->UCSR0B |= (1<<UCSZ01 );  
UART1->UCSR0B &= (1<<UCSZ02 );  
UART1->UCSR0B ^= (1<<UCSZ03 );
```



`constexpr to_chars/from_chars`

# static operator()

`std::float16_t, std::bfloat16_t`  
`std::float128_t`

`[[assume(!std::isinf(x))]]`



start\_lifetime\_as

# start\_lifetime\_as

```
struct ProtocolHeader {  
    unsigned char version;  
    unsigned char msg_type;  
    unsigned char chunks_count;  
};
```

# start\_lifetime\_as

```
struct ProtocolHeader {  
    unsigned char version;  
    unsigned char msg_type;  
    unsigned char chunks_count;  
};
```

```
void ReceiveData(std::span<std::byte> data_from_net) {  
    if (data_from_net.size() < sizeof(ProtocolHeader)) throw SomeException();  
    const auto* header = std::start_lifetime_as<ProtocolHeader>(  
        data_from_net.data()  
    );  
    switch (header->msg_type) {  
        // ...  
    }  
}
```

# start\_lifetime\_as

```
struct ProtocolHeader {  
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    );  
    switch (header->msg_type) {  
        // ...  
    }  
}
```



forward\_like

# forward\_like

```
class Something {  
    public:  
        auto operator*(this auto&& self) {  
            return std::forward_like<decltype(self)>(data_);  
        }  
    private:  
        std::string data_;  
};
```

# forward\_like

```
class Something {  
    public:  
        auto operator*(this auto&& self) {  
            return std::forward_like<decltype(self)>(data_);  
        }  
    private:  
        std::string data_;  
};
```

print



# print

```
std::print("Привет, {}! У вас {} писем", username, email_count);
```

# flat\_map / flat\_set

mdspan

Спасибо

# Полухин Антон

Эксперт-разработчик C++



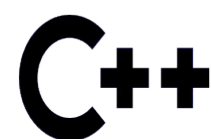
[antoshkka@gmail.com](mailto:antoshkka@gmail.com)



[antoshkka@yandex-team.ru](mailto:antoshkka@yandex-team.ru)

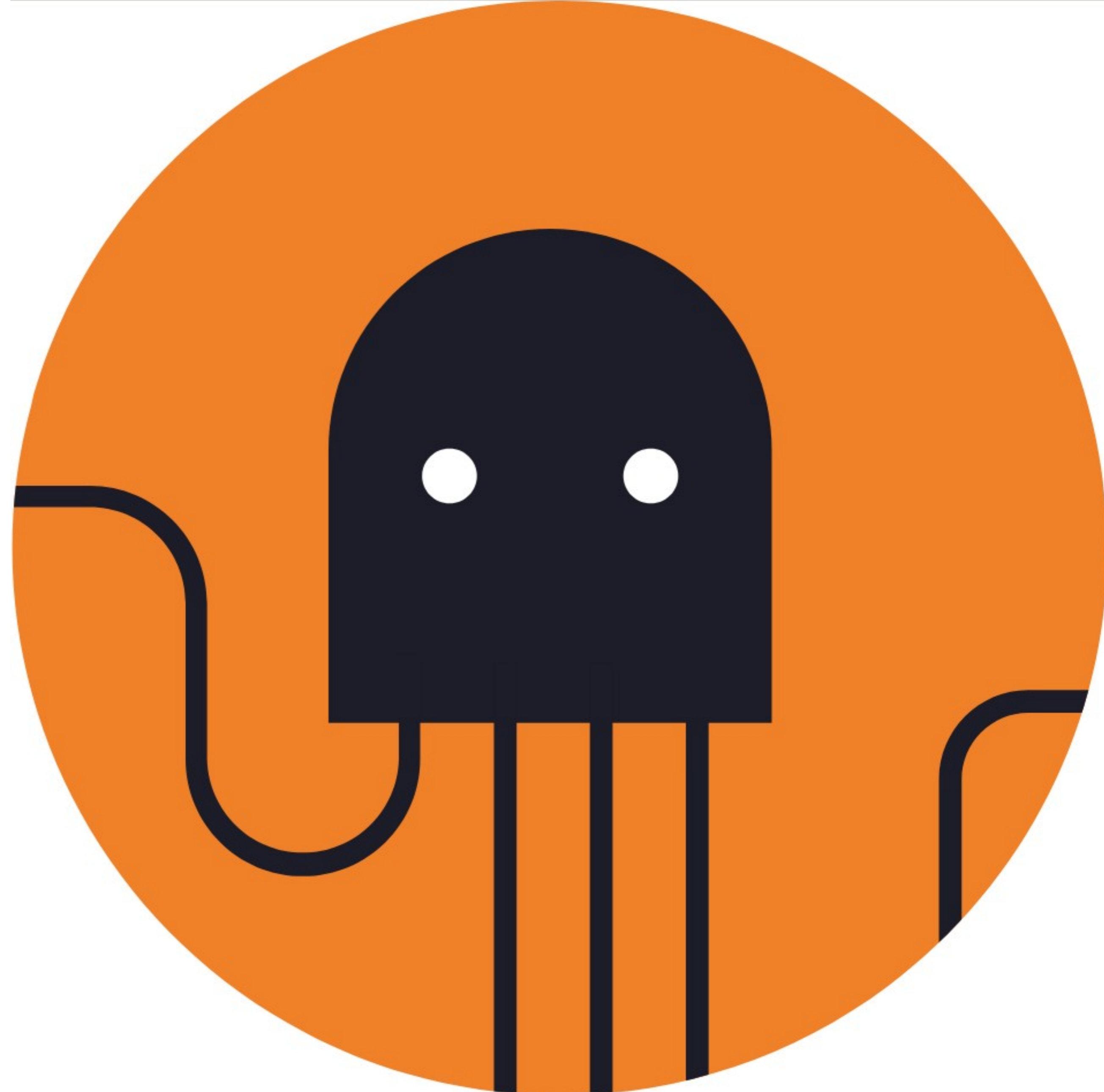


<https://github.com/apolukhin>



<https://stdcpp.ru/>

РГ21 C++ РОССИЯ



<https://github.com/userver-framework>