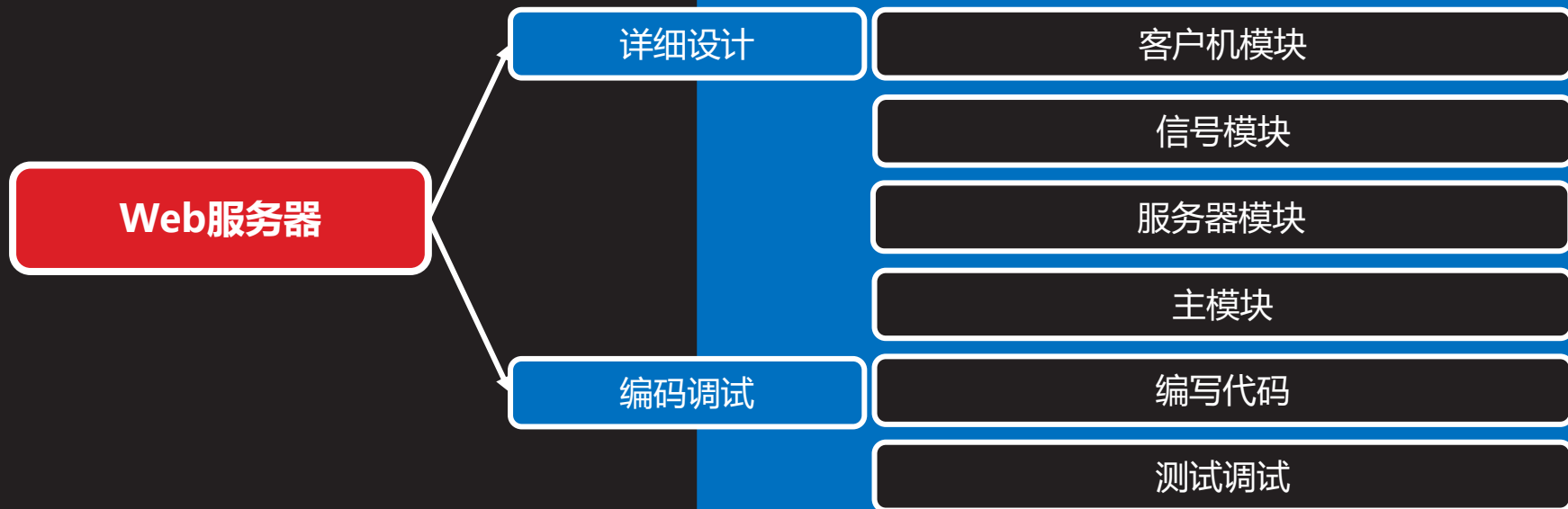


Unix系统高级编程

Web服务器项目(二)

Unit30

Web服务器



详细设计



客户机模块

- 客户机线程参数
 - typedef struct tag_ClientArgs {...} CA;
- 客户机线程过程
 - void* client (void* arg);
 - 接收请求
 - 解析请求
 - 资源路径
 - 搜索资源
 - 识别类型
 - 内容长度
 - 连接模式
 - 构造响应头
 - 发送响应头
 - 发送响应体



信号模块

- 初始化信号
 - int `initSignals` (void);
 - 忽略除下列信号以外的所有信号
 - ✓ 留作控制的SIGINT(2)和SIGTERM(15)信号
 - ✓ 不能被忽略的SIGKILL(9)和SIGSTOP(19)信号
 - ✓ 不存在的32和33信号



服务器模块

- 初始化最大文件描述符数
 - static int **initMaxFiles** (void)
- 初始化服务器
 - int **initServer** (short port);
- 运行服务器
 - int **runServer** (char const* home);
- 终结化服务器
 - void **deinitServer** (void);



主模块

- 主函数
 - int **main** (int argc, char* argv[]);
 - 初始化服务器
 - 运行服务器
 - 终结化服务器
 - 命令行参数支持缺省端口号和缺省主目录
 - WebServer 80 ../.././home
 - WebServer 80
 - WebServer



编码调试



编写代码

- 协议模块: http.h、http.c
- 资源模块: mime.h、resource.h、resource.c
- 通信模块: socket.h、socket.c
- 客户机模块: client.h、client.c
- 信号模块: signals.h、signals.c
- 服务器模块: server.h、server.c
- 主模块: main.c
- 构建脚本: Makefile



cppreference.com - Mozilla Firefox

localhost:8080

C++ reference

C++98, C++03, C++11, C++14, C++17

<ul style="list-style-type: none">ASCII chartCompiler supportLanguagePreprocessorKeywordsOperator precedenceEscape sequencesFundamental typesHeadersLibrary conceptsUtilities libraryType supportDynamic memory managementError handlingProgram utilitiesDate and timebitsetFunction objectspair — tuple (C++11)integer_sequence (C++14)optional (C++17) — any (C++17)variant (C++17)	<ul style="list-style-type: none">Strings librarybasic_stringbasic_string_view (C++17)Null-terminated byte stringsNull-terminated multibyte stringsNull-terminated wide stringsContainers libraryarray (C++11)vector — dequelist — forward_list (C++11)set — multisetmap — multimapunordered_set (C++11)unordered_multiset (C++11)unordered_map (C++11)unordered_multimap (C++11)stack — queue — priority_queueAlgorithms libraryIterators libraryNumerics libraryCommon mathematical functionsSpecial mathematical functions (C++17)Complex numbersPseudo-random number generation	<ul style="list-style-type: none">Input/output librarybasic_streambufbasic_filebufios_basebasic_iosbasic_istreambasic_ostringstreambasic_istreambasic_ostreambasic_ifstreambasic_ofstreambasic_fstreambasic_istringstreambasic_ostringstreambasic_stringstreamIO manipulatorsC-style IOLocalizations libraryRegular expressions library (C++11)Atomic operations library (C++11)Thread support library (C++11)Filesystem library (C++17)
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Technical specifications

- Standard library extensions** (library fundamentals TS)
- Standard library extensions v2** (library fundamentals TS v2)
- propagate_const — not_fn — observer_ptr
- source_location — ostream_joiner
- detection idiom — uniform container erasure
- Parallelism library extensions** (parallelism TS)
- Concurrency library extensions** (concurrency TS)
- Concepts** (concepts TS)
- Ranges** (ranges TS)
- Transactional Memory** (TM TS)

External Links — Non-ANSI/ISO Libraries — Index — std Symbol Index

C reference

C89, C95, C99, C11

<ul style="list-style-type: none">ASCII chartLanguagePreprocessorKeywordsOperator precedenceEscape sequencesHeadersType support	<ul style="list-style-type: none">Dynamic memory managementError handlingProgram utilitiesVariadic functionsDate and time utilitiesStrings libraryNull-terminated byte stringsNull-terminated multibyte stringsNull-terminated wide stringsAlgorithms	<ul style="list-style-type: none">NumericsCommon mathematical functionsFloating-point environment (C99)Pseudo-random number generationComplex number arithmetic (C99)Type-generic math (C99)Input/output supportLocalization supportAtomic operations library (C11)Thread support library (C11)
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Technical specifications

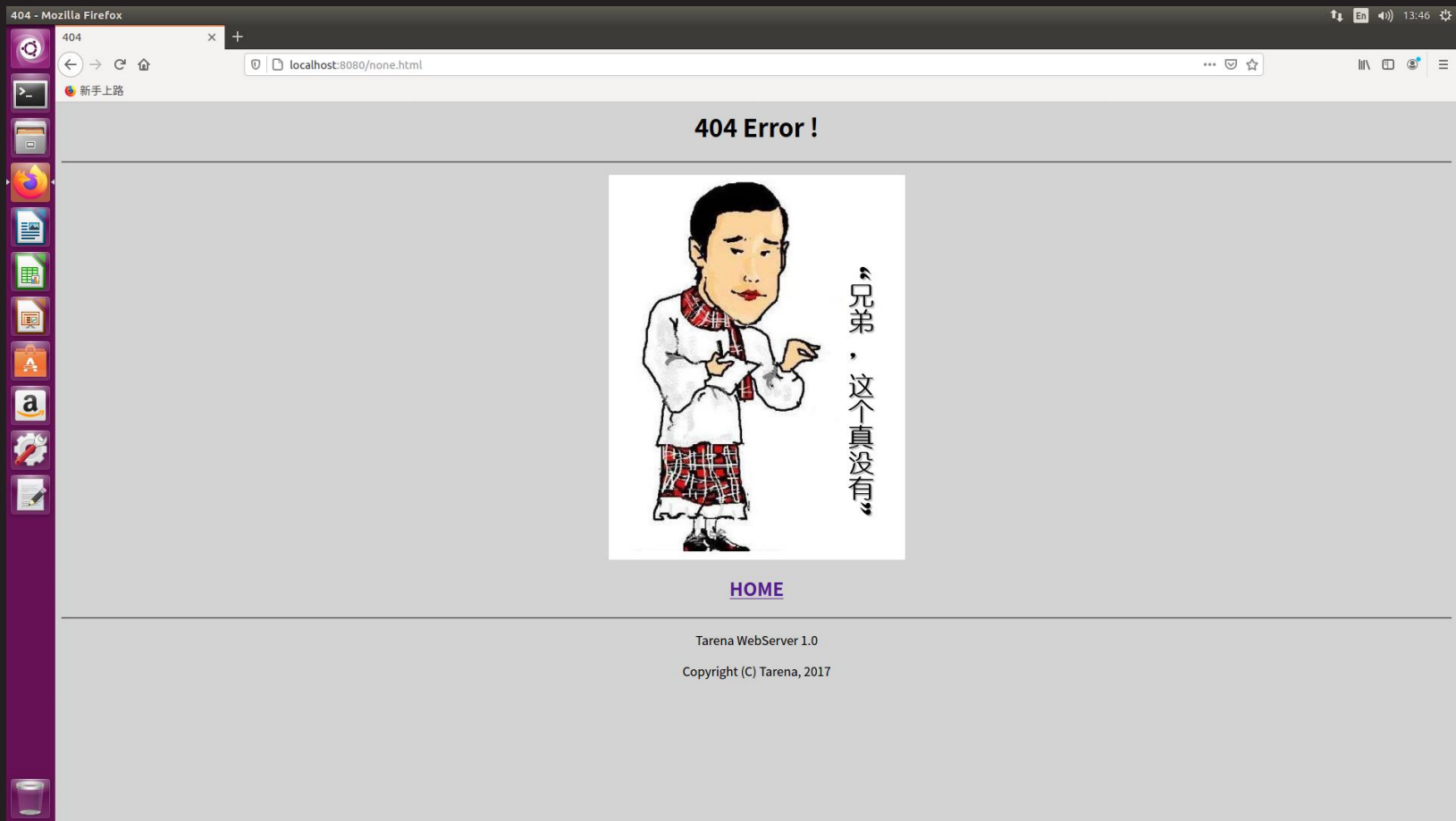
- Dynamic memory extensions** (dynamic memory TR)
- Floating-point extensions, Part 1** (FP Ext 1 TS)
- Floating-point extensions, Part 4** (FP Ext 4 TS)

External Links — Non-ANSI/ISO Libraries



测试调试 (续1)

知识讲解



测试调试 (续2)

```
tarena@UnixC: ~/Projects/UC.CSD2004/day30/code - [tarena@UnixC: ~/Projects/UC.CSD2004/day30/code]
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
13593.13777> 接收请求
13593.13774> 请求电文

GET /common/site_scripts.js HTTP/1.1
Host: localhost:8080
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:80.0) Gecko/20100101 Firefox/80.0
Accept: */*
Accept-Language: zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: http://localhost:8080/

13593.13774> 解析请求
13593.13774> [GET][/common/site_scripts.js][HTTP/1.1][keep-alive]
13593.13774> 资源路径: ../home/common/site_scripts.js
13593.13774> 构造响应
13593.13774> 响应电文

HTTP/1.1 200 OK
Server: Tarena WebServer 1.0
Date: Thu, 10 Sep 2020 05:58:53 GMT
Content-Type: application/x-javascript
Content-Length: 164
Connection: keep-alive

13593.13774> 接收请求
```



总结和答疑

