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Analysis of the Development of WeChat Mini Program

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Abstract. In 2017, we called it "WeChat Mini Program and the first year". Since then, the development of the WeChat Mini Program has been booming. At present, the next generation of mobile Internet industry is developing toward the development of "micro, light, and small", like the WeChat Mini Program, this revolutionary lightweight "APP" that does not require downloading, runs out, and simultaneously has information publishing, advertising, and service functions, will become the best choice to replace the mobile client APP. This article will analyze the system implementation and prospects of the WeChat Mini Program, and study the system architecture, key technologies and market prospects based on the WeChat "small program" development.¹

1. Introduction

On January 9, 2017, Zhang Xiaolong officially launched the small program released on the 2017 WeChat Open Class Pro. WeChat Mini Program, abbreviated as applet, abbreviated XCX, English mini program, is an APP that can be used without downloading and installing, he user can use the full functions of related applications in the WeChat interface by scanning the QR code or searching for the corresponding name of the applet, and the used applet does not occupy the memory of the mobile phone. After the full opening application, for developers whose main body types are companies, governments, media, other organizations or individuals, they can apply for registration of small programs. The applet, subscription number, service number, and enterprise number are parallel systems. The WeChat Mini Program has played the characteristics of "micro, light, and small" incisively and vividly.

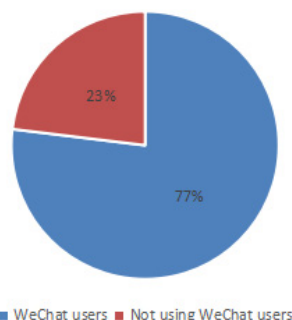


Figure 1-1 The proportion of WeChat users in 2017



As we all know, in recent years, the mobile Internet platform has been booming, and mobile users have also taken a dominant position in the market. According to the disclosure in Tencent's latest 2017 Q4 financial statement, WeChat's monthly active account reached 988.6 million, an increase of 11.2% over the same period of last year. After the Spring Festival, the monthly active account exceeded 1 billion. Social and other advertising revenues rose by 68% to RMB 8.24 billion, mainly due to the increase in advertising revenue from WeChat public accounts and personal WeChat circle of friends. The proportion of WeChat users in 2017 is shown in Figure 1-1. At the same time, Tencent optimized its WeChat user interface to better highlight small programs. The mini-game launched at the end of 2017 has won wide attention and rapid popularity among users. These data provide a broader space and platform for the development and application prospects of WeChat "small programs." Therefore, this paper intends to analyze the system implementation and development prospects of the development of the WeChat applet, and the system architecture, key technologies, and market prospects for the development of WeChat "small programs" were studied.

2. WeChat Mini Program

The development framework of the WeChat Mini Program is based on the MINA framework, MINA is a network communication application framework based on Java technology. The framework features Java asynchronous input and output technology, it can support P/UDP agreement, the user chooses the threading model according to the actual demand, thus realizes the multithreaded model application, and can also offer serialization service of Java object, communication service of the virtual machine pipeline, etc. MINA can quickly develop high-performance and highly scalable network communication applications. Its basic architecture is shown in Figure 2-1.

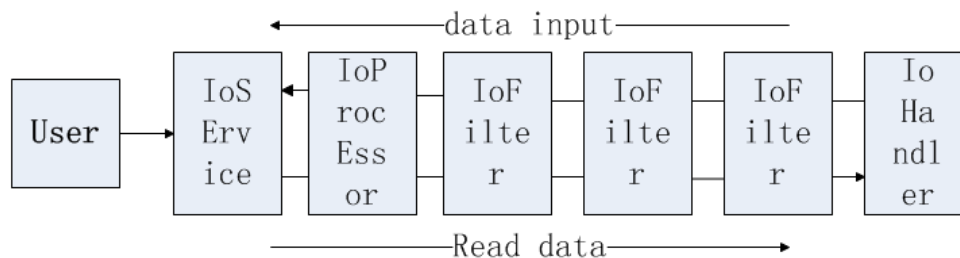


Figure 2-1 MINA framework for WeChat Mini Programs

Among them, IoService is the entrance of the application and can be used to add multiple IoFilters. These IoFilters meet the responsibility chain pattern and are called by the IoProcessor thread. IoHandler is a business processing module. It does not need to care about the actual communication details in the service processing class. It only needs to process the information transmitted by the client. IoFilter is used to filter the data from the user's request or sent to the client. Some commonly used filters are IoFilters, such as logging, blacklist filtering, compression filtering, and SSL encryption. The application process of the MINA framework is relatively complex, but it has good flexibility in use. For example, developers can customize various encoding methods, encryption algorithms, and log records according to their own requirements. This applies to mail servers, streaming media servers, and IMs. Server application scenarios such as servers, where user needs are classified more. Based on this feature, the WeChat Mini Program uses the MINA framework for development to meet the needs of more users, and it also provides developers with great convenience.

The system of the WeChat Mini Program mainly includes app.json, app.js, and app.wxss. Among them, app.json is the global configuration of the entire applet. The developer can configure which pages the applet consists of, configure the background color of the applet, configure the navigation bar style, and configure the default title. The page as the core content of the applet generally consists of three files: index.js is the logic processing code, which is mainly used to define the data of the page; index.wxml is the layout file, which is mainly used for the overall structural design of the page; Index.wxss is a style sheet that determines how the various components should ultimately be displayed. App.js is the applet's

script code. The developer can monitor and process applet lifecycle functions, declare global variables, and call MINA's rich APIs, such as synchronous storage and synchronous read local in this example. App.wxss is a common stylesheet for the entire applet. Developers can use the style rules declared in app.wxss directly on the page component's class attribute. The main structure of the WeChat Mini Program system is shown in Figure 2-2.

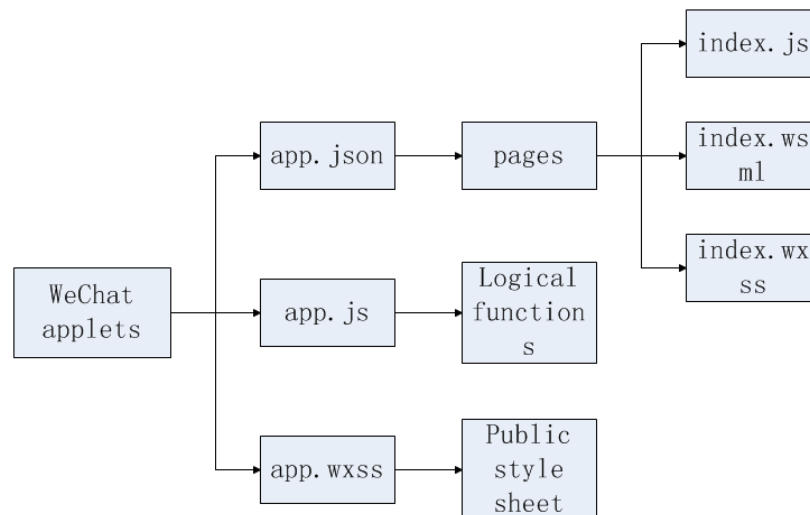


Figure 2-2 The main structure of the WeChat Mini Program system

3. WeChat Mini Program development

3.1 Get App ID of WeChat Mini Program

Due to the restriction of WeChat, developers cannot directly use the App ID of the service number or subscription number, and need to log in to the small program development account already provided by WeChat. Then, you can view the WeChat Mini Program in the "Settings -Developer Settings" of the website. If the developer does not use the administrator micro-signal that is registered at the time of registration, it also needs to bind the developer, that is, in the "user identity - developer" module, binding needs to experience the micro-signals of the applet.

3.2 Create WeChat Mini Program project

Developers can use the developer tools to complete the creation of small programs and code editing, the specific steps are as follows:

- (1) Install the developer tools on the web page, open and log in using the WeChat scan code.
- (2) Select Create Project, fill in the App ID obtained above, set a local project name, but this is the name of the applet, and select a computer's local folder as the directory where the code is stored.
- (3) During the creation process, if the selected local folder is an empty folder, the developer tool will prompt if it is necessary to create a quick start project. After selecting "Yes", the developer tools will generate a simple demo.
- (4) After the project is successfully created, the developer can click on the project, enter and see the complete developer tool interface, click on the left navigation, in the "Edit" can view and edit our code, in the "debug" can test the code And simulate the effect of the applet on the WeChat client. In the "project", you can send it to the phone to preview the actual effect.

3.3 Write program code

Click on "Edit" in the left navigation of the developer tool. Developers can see this project. It has been initialized and contains some simple code files. The key is app.js, app.json, and app.wxss. Among them,

the .js suffix is the script file is mainly the logic function of the applet, the file with the .json suffix is the configuration file, including the configuration line bar, the bottom menu, etc. The .wxss suffix is the style table file.

3.4 Create pages

The page is the core content of the development of the WeChat Mini Program, and generally includes an index page and a logs page, IE, a welcome page and an applet startup log display page, all in the pages directory. The "path + page name" of each page in the WeChat Mini Program needs to be written in the pages of app.json, and the first page in the pages is the home page of the applet. Each applet page is composed of four different suffix files with the same name under the same path, such as: index.js, index.wxml, index.wxss, index.json. The .js file is a script file, the .json file is a configuration file, the .wxss file is a style file, and the .wxml file is a page structure file. In the pages structure of logs, the logs page uses the <block/> control tag to organize the code, uses wx:for-items to bind the logs data on <block/>, and loops the logs data to expand nodes.

4. Market Outlook of WeChat Small Program Development

WeChat's smaller development process is easier than the iOS app and Android app, and the cost is lower. At the same time, the marketing cost of micro-signals is also very low. Then, different industries and enterprises of different sizes will have good market prospects in the development of WeChat "small programs". The following will address the needs of different types of enterprises, developers, and users and the market prospects for the development of WeChat "small programs". Conduct the analysis. The WeChat Mini Program will reduce the entry threshold for developers, and its learning costs, production costs, promotion costs, and operating costs will all be reduced. This is both an opportunity and a challenge for small and micro startups. These types of enterprises are often small in number and have limited funds. There is no more resources to support the development of apps, and the appearance of small programs can make up for the disadvantages of these enterprises, enabling companies to quickly respond to market demands and quickly develop lightweight applications that attract users' needs to obtain the company's follow-up development "first barrel of gold." However, such enterprises must also follow the pace of small-scale procedures. It is imperative to do some strategic changes. Internal cooperation and division of labor are issues that companies need to consider.

For developers, the WeChat Mini Program represents yet another "golden age" in the developer community, giving WeChat an extensive user base and business development platform. Developers are able to develop a lower-cost app with minimal time and speed. At the same time, this is yet another round of "erasing times" for developers, because users will be more inclined to use WeChat Mini Programs that have no gap with native app experiences. This will greatly test the skills and quality of developers. Developers must By improving the technological content of the transfer from the native app to the applet, it is possible to develop a WeChat Mini Program that meets the higher needs of users.

5. In conclusion

Compared with the traditional mobile client app, the WeChat Mini Program has a simpler system architecture; the development technology is very similar to the mobile client app, and a simpler page code is used; At the same time, WeChat provides the necessary developer tools to help developers quickly get started with the development of the WeChat Mini Program. Judging from the characteristics of the current development of WeChat Mini Programs, WeChat "small programs" have lower cost and faster development advantages than the mobile client app of the system, and are in line with the "micro, small, and light" trends of the next-generation mobile internet industry, and will have a wider market outlook.

Acknowledgements

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