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## Research Note: Huawei and America

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### Introduction

The Internet is going through another radical transformation. Low-cost, high bandwidth, wireless intelligent broadband has started to rollout on a global basis. This transformation has been driven in part by a new set of entrants that have disrupted the US-European-Japanese telecommunications manufacturing oligopoly. The Chinese telecom manufacturer Huawei has come to the market with significantly lower priced solutions that provide upgrade paths to Next Generation Networks. Though these solutions are extremely competitive, during the Fall of 2010 we saw the US telecom carrier Sprint run into immense pressure from elements in the US government that resulted in Sprint choosing not to go with a Huawei solution.

Huawei has become the number two sized telecom manufacturer in the world, second only to Ericson. Revenues in 2010 were approximately \$32 billion. In certain categories, it is the world's number one supplier. It has over 90,000 employees, over a third of which are dedicated to R&D. The cost structure that Huawei faces for R&D is very different from that of its Western rivals. Because Chinese universities have been graduating large numbers of engineers and PhDs, Huawei has traditionally paid wages that can be as low as one fifth of Western bundled wages. Though this is changing, Huawei has had the luxury of being able to get much more done, for the same amount of investment. As a result, and let me highlight the significance of this statement- it has been able to customize solutions that connect legacy systems with next generation networks. Huawei was initially successful in the Chinese provinces, but quickly found success in African and countries; soon afterwards Eastern European

countries were taking the risk of going with Huawei. 40 of the world's 50 major telecom companies now use Huawei equipment; however Huawei has experienced great difficulty with US carriers. While it has secured one major deal with a Clearwire WiMax contract in the US, and plenty of enterprise telecom business around the world, the US telecom carriers have not gone with Huawei.

### **US Government Concerns**

The US Government is gravely concerned about the security of the nation's telecommunications infrastructure when the equipment is sourced from all over the world with a multi-tiered supply chain with no system for guaranteeing trust of each component. There is fear that "Trojans" can be unintentionally installed in the network where they can be activated maliciously at a chosen time. These Trojans could theoretically be used to bring down the network or provide access to information.

The relationship between the United States and China has become complicated on many fronts. These complications extend to the intelligence communities, where there is a need for collective security while at the same time each nation is trying to penetrate and make vulnerable the rest of the world's information infrastructure.

### **Congressional Concerns**

The concern within the US Government boiled up in a letter from Senators Jon Kyl (R, Ariz.), Joseph Lieberman (I, Conn.), and Susan Collins (R, Maine) and Rep. Sue Myrick (R, N.C.) to the Federal Communications Commission in October of 2011 asking the Commission to take a closer look at Huawei and its Chinese rival ZTE.

The letter read: "The sensitivity of information transmitted in communications systems, as well as the potential for foreign espionage, requires that the U.S. government take decisive action to ensure the security of our telecommunications networks." (Raice, 2010)

The letter goes on to say that Chinese telecom-gear developers are potentially subject to "significant influence by the Chinese military which may create an opportunity for manipulation of switches, routers, or software embedded in American telecommunications network so that communications can be disrupted, intercepted, tampered with, or purposely misrouted." (Raice, 2010)

Though there are regulations on what can be exported to foreign companies and procedures for barring investment by foreign companies in US firms, there are no regulations on purchases by US companies from foreign firms.

### **Amerilink**

In an effort to address these concerns, Huawei and Sprint proposed working through an American company, Amerilink Telecom Corp. as the distributor and integrator. Amerilink executives include Kevin Packingham, Sprint's former senior vice president of product development, who joined Amerilink as its chief executive; former Vice Chairman of the U.S. Joint Chiefs of Staff William Owens, is Amerilink's chairman and an investor (Ziobro and Chao, 2010); and in September of 2010, former congressional leader Richard Gephardt and former World Bank President James Wolfensohn were recruited as directors.

Huawei has also attempted to address security concerns by agreeing to put its software code in escrow with a third party, Electronic Warfare Inc.

### **Commerce Department**

Unfortunately for Huawei, it could not simply buy its way into the influence it needed to pave the way for the Sprint deal even though Huawei's Multi-modal solution which concurrently supported Sprint's CDMA, W-CDMA, WiMax, Nextel, and LTE standards was an ideal solution for Sprint, is technologically superior to what was bid by Ericson and Alcatel Lucent and was rumored to be offered at a couple billion dollars less.<sup>1</sup>

On Nov. 6<sup>th</sup>2010, the *Wall Street Journal* reported that Commerce Secretary Gary Locke called Sprint Chief Executive Dan Hesse this week to "discuss concerns about awarding the work to a Chinese firm, but didn't ask Sprint to exclude the Chinese suppliers." (Lublin and Raice, 2010)A couple days later it became clear that a joint bid of Ericson and Alcatel Lucent was selected by Sprint.

### **3Leaf**

This was not the first public humiliation for Huawei. Back in 2008, the US Commission on Foreign Investment in the United States (CFIUS) had blocked Huawei's bid to buy electronics

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<sup>1</sup> It should be noted that Huawei provided a way for Sprint to support both WiMax and LTE in one box. Sprint is in the painful place of having made a commitment to WiMax while the industry has chosen LTE. With a Huawei solution, Sprint could go both routes. Huawei also could support in the same box the legacy Nextel protocol that it was committed to supporting.

manufacturer 3Com Corp. In January of 2011, Huawei was called on the carpet for not getting permission from CFIUS to buy the remains of 3Leaf, a cloud computing technology company.

### **Huawei's Invitation**

Huawei responded that it was not an outright acquisition and on a letter posted on its website, Deputy Chairman Ken Hu provided details about Huawei's tax breaks, government research grants and its arrangement with China Development Bank. Hu invited the United States to examine Huawei more closely to clear up any misapprehensions. (Chao and Raice, 2011) They then published the letter in the New York Times.

### **People's Liberation Army**

The letter also gives a brief portrait of Huawei's founder and chief executive, Ren Zhengfei, a former officer in China's People's Liberation Army. Zhengfei's history with the PLA has been a matter of controversy. The letter says Mr. Ren grew up in "a remote mountainous town" in China's southwestern Guizhou province and served in the military's Engineering Corps for nine years before he established Huawei in 1987 with 21,000 yuan or about \$3,000 at today's exchange rates. (Chao and Raice, 2011)

Ren Zhengfei was a master in developing the connections both in the PLA and with a wide variety of organizations to propel Huawei into its position of leadership. These relationships went to the highest levels of the Chinese Communist Party. Many of these relationships can be typified as "guanxi"—based on the art of personal relationships that the Chinese so value and which greases the whole system.

Today's Huawei claims to be an employee stock owned company, but is not publicly traded. Part of the complexity stems from the fact that stock was given out to customers in its early days. Over 200 Chinese municipal and provincial organizations hold some sort of stock in Huawei. These relationships are not transparent and have been a barrier for Huawei becoming a listed public company.

Huawei is now claiming that it has no formal relationships with the PLA. The US Department of Defense thinks this is only half true and that Huawei is one of the PLA's favored children. What is rarely noted in stories linking Huawei to the PLA is the fact that the Internet itself and much of mobile telecommunications is a product of the US Department of Defense.

## **Conclusion**

Huawei is building much of the world's telecom infrastructure and will continue to do so based on its ability to supply solutions for combining legacy systems and next generation networks at a price significantly below what can be offered by Western vendors.

It is essential that the supply chain for the world's telecom infrastructure be trusted, and for this to happen the US and China have to work together. There are some signs that Huawei has opened up a channel of communications with CFIUS and the Administration that can be the basis for developing this cooperation.

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