

Computer and Telephony Integration is an ongoing process

By Jan Verhelst

In the US there was a major change in the telephony business after the breakup of the Bell system in 1984.

The 1980s

People started to know that development of new sophisticated telephone systems became very expensive and should be done on a greater market share. The initial talks in 1985 between the American GTE and the European SIEMENS to merge their public switching systems GTD5 (GTE) and EWSD (SIEMENS) into a single product did not work out.

The only result of their talks was that GTE Lenkurt was sold to SIEMENS, to become Siemens Transmission Systems, and that GTE sold its overseas plants in Italy, Taiwan and Belgium to SIEMENS.

At the end of the 1980s GTE and their perpetual rival American Telephone and Telegraph (AT&T), had merged into a new company, ATT GTE Communication Systems (AGCS). "If you cannot beat them, join them."

Also in Europe some mergers took place: Bell Telephone Manufacturing Company (BTMC), a telephone factory formed in 1882 by the American companies Western Electric and International Bell Telephone Company, became part of ITT in 1925. In 1986 BTMC was sold to the French group ALCATEL to form a greater unit.

In 1988 GTE went into a joint

venture with the Japanese company Fujitsu for their domestic private network business to form Fujitsu GTE Business Communication Systems (FGBCS), headquartered in Anaheim, California.

should be done on a larger scale, even internationally:

- In 2006 the American company Lucent joined forces with the European Alcatel to form ALCATEL LUCENT.

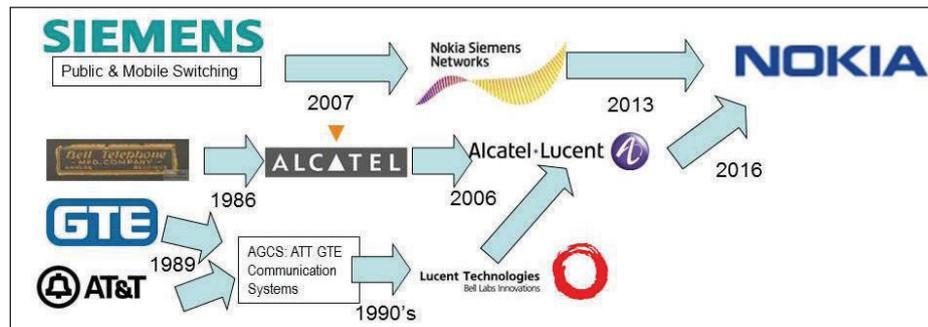


Fig. 1 Merge of telecom business – public networks

The 1990s

In the 1990s AGCS became part of LUCENT, also something on a greater scale.

GTE left the joint venture FGBCS, which became FBCS, Fujitsu Communication Systems.

SIEMENS started to join forces of their Computer and Network divisions, scattered over different companies within the Siemens group into Siemens Business Communication Systems in 1998. They became aware that Computer infrastructure and Networks should be very important in the further evolution of the internet as a global network.

The first decade of the new millennium

More and more people became aware of the fact that things

- In 2007 the German company SIEMENS went into a joint venture with the Finnish company NOKIA to form NOKIA SIEMENS NETWORKS (NSN) to address a larger audience in public and mobile switching.

In 2008 the German SIEMENS went into a joint venture with the American company "The Gores group" to form Siemens Enterprise Communication Systems. Dedicated telephone equipment such as PABXs were in most cases replaced by applications running on a server.

- Siemens Business Systems was renamed to Siemens Information Systems in 2007.

The second decade of the new millennium

- In 2011, the group ATOS took



From Alcatel Lucent purple to Nokia blue

Pictures taken at the Alcatel Lucent plant in Antwerp, Belgium on the first day of the merger January 14, 2016.

over Siemens Information Systems, since SIEMENS wanted to leave the Computer Business.

- SIEMENS decided to leave the joint venture Nokia Siemens Networks (NSN) in 2013. This company which was renamed to Nokia Solutions Networks (same letters), but profiled itself as NOKIA in 2014.

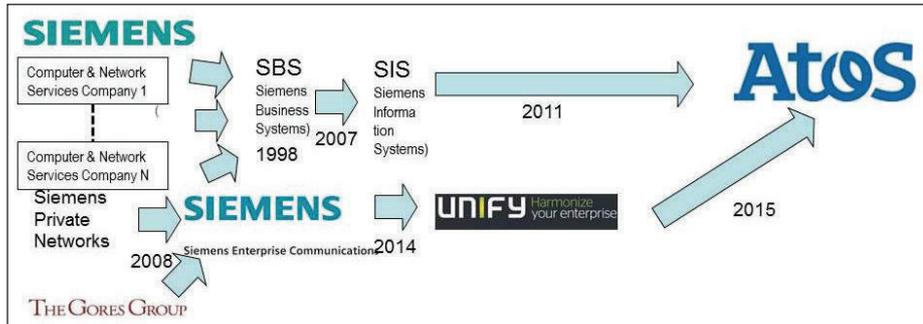


Fig. 2 Merge of telecom business – private networks and computer business

- In 2014 Siemens Enterprise Communications was renamed to Unify.

- In 2015, Unify merged into ATOS, while Siemens left the joint venture. This is a good example of the market trend to merge Computer and Telephony into one single business.

- In 2016, NOKIA took over Alcatel Lucent to form one great company. Both companies are a bit complimentary, Alcatel Lucent was great in IP business; Nokia has more background in the Mobile business. The famous Bell labs from Alcatel Lucent will get together with Nokia's own R&D division to form an excellent R&D superpower team.

The merger became effective on January 14, 2016. Worldwide people from both companies were meeting each other. See pictures of the symbolic replacement of the purple Alcatel Lucent logo with the blue NOKIA logo at the plant in Antwerp, Belgium.

There are now 3 major players on the market:

Nokia, a merger of several companies from both sides of the ocean as explained above,

Ericsson with a Cisco partnership, Huawei, from Chinese origin.

A telephone collector 50 years from now

The last decades the whole telephone business changed drastically. Telephony had dedicated sophisticated telephone switching systems

in the 1980s, running on dedicated telephone networks.

In the current decade, telephony is an application running on a server somewhere in the cloud, using the internet as the omni-present switching network.

Dedicated phones are replaced by portable user interface devices such as tablets, smartphones etc. where voice is treated as a special form of data.

The telephone business merged with the data business, and the development moved from products to services.

A new challenge will appear for collectors. What will collectors collect 50 years from now, and how will they be able to maintain these sophisticated devices several decades from now, when the basic components are not available anymore?



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Typical Hospital PBX — 1970

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On some cord switchboards, an extension need press the hook switch only once, and the switchboard will automatically display the flashing signal until the operator responded. This feature was not used on this hospital system.

Public Address System Page:

Paging physicians, interns, residents, and supervisory staff was a major switchboard function. Two operators were dedicated to this task and they were very busy. Extensions would dial 1 or 8 to reach the desired page operator. Outside callers would be connected to the page operators via inter-position trunks.

To use the loudspeaker, the operator pressed a special key on the key shelf, and spoke through her headset. A red light signaled the other page operator that the loudspeaker was in use. The speakers ran throughout the hospital. Sound quality was clear, though loudspeaker volume was moderate. Given the quantity of pages, a moderate volume was probably a good thing to avoid distracting staff or disturbing patients. I believe the system was provided by Bell.

When there was no page announcement, the system played recorded music from a tape recorder. The night operator would press stop on the machine, and the morning operator would restart it. Otherwise, the operators did not touch the music tape player.

Around 1972, the page system was upgraded. Operators were moved off the cord switchboard to a desk with Call Director-like consoles. A facility called “meet me” page was added to facilitate connections to outside callers, which eliminated some tricky cord work by the page operators when connecting an outside caller to a paged person. Also, at that time experiments were made with electronic beepers.²

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