

Title	アドホックPANにおける個人情報環境に関する研究
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Citation	
Issue Date	2002-03
Type	Thesis or Dissertation
Text version	author
URL	http://hdl.handle.net/10119/1574
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A Study on Personal Information Environment in Adhoc PAN

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February 15, 2002

Keywords: Adhoc PAN, Personal Information Environment, Cooperation of Information Devices, Share of Informations and Functions.

We can carry many information devices. For example mobile phone, PDA, NotePC and so on. These devices become small size and light weight. Because semiconductor technology developed every year. In addition, A portable device can take many kinds of functions. Because portable devices get high speed CPU and much memory. In such background, We have many devices and carry many devices. Every year, size of these devices become smaller than past year. And its weight is more light than past year. Because these devices are used in mobile environment. In the future, We think that we will have more kinds of devices than past year. In this case, There are many devices around the person. Otherwise, a concept was born. It was PAN(Personal Area Network). PAN is a concept that consists of many devices around us. Therefore PAN can be considered as individual centered network. And We can make PAN that consists of wearable personal information devices. Because short-range wireless communication technology is developing.

In such situation, when we use a device, we have a demand that access personal information, such as schedule, telephone directory, address book, and so on. Also We have a demand that is using function in another devices from terminal device in mobile environment.

Now, we can solve for demand that we need to connect each information device, setting each device and running function on each device. If each device doesn't have common interface, person can't connect each devices. And if each devices have different expression of information, person have to convert proper information type. Now, person needs to devote of hard work for using personal information and function in other device. If we reduce these our effort, we can take connecting more information devices and cooperating more function in devices. Cooperating many devices make synergy effect and it realize more number of functions and more complex functions.

The principal purpose of our study is to realize using our information between PAN devices, and calling functions between each PAN devices. Our study realize that we can use each our information and function from one of another devices unless we have to connect explicit each device and explicit operate each devices.

In this paper, we defined TPAN that is advanced PAN. TPAN is a world that we can use our information on other device, and we can access any function. And we proposed TPAN model. TPAN model can convert PAN to TPAN. TPAN model enable to using function on other devices. And we can use the function from terminal device. For cooperating each device stored information, each device must be understand about stored information in each device from all devices in TPAN. Otherwise, For cooperating each device stored function, each device must be understand about stored function in each device. And how function we can combinate from all information devices in TPAN. For solving these matter, We discussed about expression of information and function in each devices in PAN. And we discussed about management of information and function in each devices in PAN.

We set description to information and function in devices in PAN. The description described about the information that is **information header**. Information header has several fields. These are information class, comment, and pointer of real information. If a information consists of many other information, The information header has many pointers. The description described about the function that is **function header**. Function header has several fields. These are function class, comment, and necessity input function, necessity output function, and necessity input information, necessity output function, and pointer of real function. And, When we have a purpose, we cooperate information and function by we see the header. We can understand easy to mean about each information and function. Function header have Information that is able to cooperate function. When we want to cooperate many functions in each devices, we can make easy to select using information and cooperating function.

We designed six elements according to TPAN model. IL is a list that used for management of information in each device. IL consists of many records that is Information header. FL is a list that used for management function in each device. FL consists of many records that is Function header. DL is a list that used for management membership in TPAN. DL has a list of current TPAN members. ILDB is a Database that used for management of information in TPAN. ILDB Makes by TMS that is running every device in TPAN. ILDB consists of all IL in TPAN. FLDB is a Database that used for management of function in TPAN. FLDB Makes by TMS that is running every device in TPAN. FLDB consists of all FL in TPAN.

TMS(Tpan Management System) is a system that is management TPAN. TMS

is running on each device in TPAN. Each TMS has two Databases that are ILDB and FLDB. TMS have many roles. TMS exchange IL/FL between information devices. And it merges each IL/FL to make ILDB/FLDB. When TMS makes ILDB, TMS merge IL accord to Information class. And When TMS makes FLDB, TMS merge FL accord to Function class. TMS call for information and functions in other devices from person's terminal device.

Further, We make a scenario that consists of several information devices. These devices are mobile phone, note PC, projector, and sound equipment. In this scenario, A person appears. He perform the presentation using note PC, projector, and sound equipment from his terminal information device at mobile phone. We use the scenario for testing our designed TPAN. We confirmed that our designed TPAN filled our design request.

Finally, We discussed about matter that is request for implementation. We have two requests for TPAN implementation. The one request is "TMS must run many kind of devices". Another one is "Lists are able to extend and application is able to understand extension of list". Otherwise, we decide that TMS implementing language is Java, and Lists implementing language is XML. Our assignment is a implementation of TPAN. It is using our consideration.