

A walk through the world of networks

Looking for patterns in coincidences

How often do coincidences occur? If you really think about it, you may find that you run into a friend unexpectedly or experience sudden inspirations more often than you realize. Can we take this observation so far as to form a hypothesis that unconscious selections or habits manifest themselves into recognizable patterns? This would mean that, in fact, coincidence is the inevitable result of an unconscious selection process. Let's apply this theory to the case of electronic networking, where a series of links connect a single starting point to an infinite number of points. If there is some kind of pattern that exists for selecting a network path from the vast number of possible link combinations, we might gain insight into the future of network system development. We interviewed various people to help us explore this topic further.

(Typical Convenience Store Layout) Easy-to-Find Products and Long, Attractive Aisles

On my way to the beach one summer, I felt myself becoming hungry and decided to make a quick stop at a convenience store. As I went in I noticed it was decorated to create a fun beach-like atmosphere. For example, a beach ball was hanging from the ceiling and a special table near the cash register displayed colorful plastic picnic sheets. One might be very impressed by the colorful decorations, all intended to attract customers and increase sales. In reality, however, this kind of promotion effort is ineffective and most shops that utilize them experience poor sales results.

“There appears to be no scientific reason for this. The promotion efforts all seem to make sense when you hear them,” said Yukio Suzuki, an editor at the business magazine “Monthly Food Trade.” As he pointed to a diagram of a customer flow plan for a convenience store, he seemed pleased, yet surprised at being interviewed for a magazine about semiconductors, which he thought was a bit “out of place” for him. Mr. Suzuki is also the editor of the quarterly magazine, “Conveni” (convenience store) published as a special edition of “Monthly Food Trade.”

He explained customer flow as follows: “As you enter a convenience store, the first products you notice are the ones displayed straight ahead of you. That’s why stores usually put box lunches at the very end of the aisle you see as you first walk in. They are at the opposite end of the store from the cash registers. Not only do box lunches normally have a markup of over 30%, they are one of the most popular items sold by convenience stores. In contrast to most of their

other products, convenience store chains each develop their own box lunch promotion strategy, differentiating themselves from competitors by the way they make their box lunch display stand out. This is the first step in managing customer flow patterns: create a highly visible box lunch display that attracts customers into the store.” Sales wouldn’t increase much, though, if customers simply walked over to the box lunch section and came directly back to pay for that item only.

“The purpose of customer flow planning is to make the path of customers walking through a store as long as possible. This increases the chances of customers buying items they hadn’t realized they needed as well as promotes impulse purchases. To increase these kinds of purchases, daily food items like tofu and other side dishes are displayed in a refrigerator case next to the box lunches, and next to that are milk and dessert items. The fact is that many customers purchase these items, even though they came into the store intending to buy only a box lunch. In terms of overall flow, the idea is to gradually draw customers to the back of the store, where they can also find soft drinks, another item accounting for a high percentage of a store’s sales.”

The following pattern is possible as well. A customer comes into a store, picks up



Yukio Suzuki

Editor of “Monthly Food Trade” magazine, a trade publication for food store owners that covers management topics.

He is also the editor of “Conveni” (convenience store) magazine, a special edition of “Monthly Food Trade.”

a lunch box and then looks for a soft drink. On his way to the soft drink section, he notices the side dishes and desserts and decides to buy one of them, even though he thinks of these items as only occasional purchases, like a special treat.

“Finally a customer walks around the corner from the soft drink section and sees a rack of magazines, another key product category. If a customer completes this walking pattern, he has followed the store’s intended flow plan, finally returning to the cash register where chewing gum and candy are displayed.

Customers are usually easily influenced into buying these items, which can be purchased with a single coin.”

So the customer is presented with an alley of attractive products one after another. This sounds like a very well thought-out plan.

On the other hand, grocery stores display fresh fruit and vegetables near the entrance in an effort to attract customers with seasonal appeal and freshness. The special promotion table near the entrance of a convenience store is its equivalent. Take a close look at an overall convenience store display, though, and you’ll notice that seasonal appeal is not the only selling point at these special promotion tables.

“Up to now, I’ve been talking about two-

dimensional flow planning. You also need to manage a selling floor in three dimensions. First, let’s consider height. A good store utilizes heights at which a customer would naturally notice a product and find it easy to reach. This translates into placing popular items at roughly chest level. These items change with the seasons. Using ready-to-eat noodles as an example, in winter, ramen soup noodles are usually displayed at chest level. In summer, though, when sales of soup items typically decrease, they are replaced with chow mein.”

If popular items and items the store would like to sell more are given stand-out displays, then what about the rest of the products?

“Good display management takes into account the depth of the shelf. A popular item may get three packages displayed side by side to increase its noticeable area within a customer’s field of view. A less popular item would only get one spot in the front row. This technique has the dual advantages of promoting popular items and making it easier to keep shelves stocked. As products in the front row disappear, those behind can be pulled forward for a more attractive display.”

A convenience store needs to subtly differentiate between approximately 3,000 products in such a way that utilizes 1,060 sq. feet of space to maximum advantage.

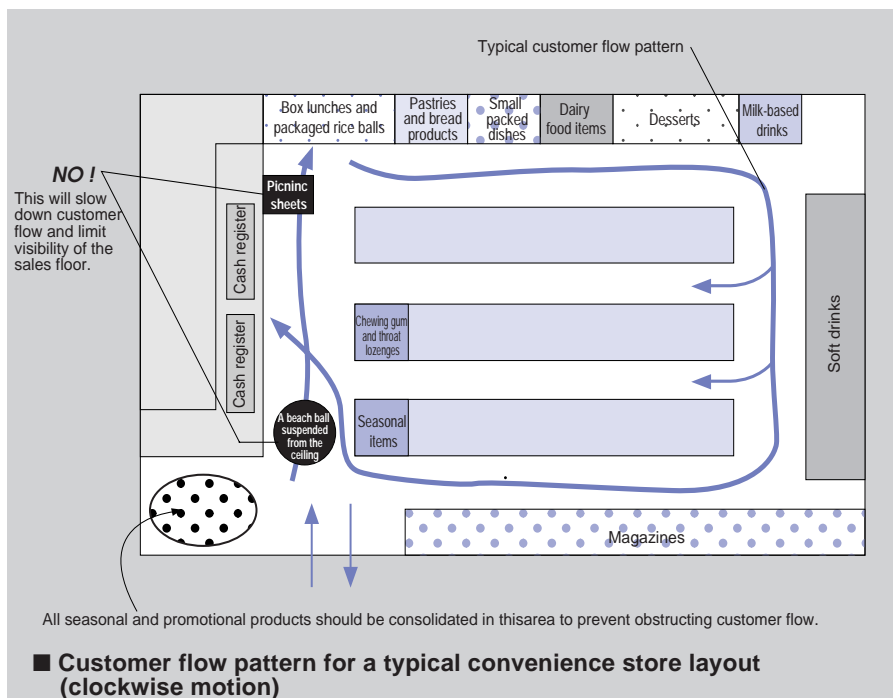
Now we can see why the aforementioned shop located near the beach had an ineffective strategy. The store owner was so enthusiastic about promoting seasonal goods that he ignored customer flow toward the key box lunch items. As a result, the circular flow of customers was minimal, offering them less exposure to other products. Such a store layout does not use the selling floor to best advantage as it misses the chance to sell additional standard and impulse products. A convenience store is not a beach house.

Four key findings:

- 1) Box lunches, a product that is attractive to both the shop and to customers, should be clearly displayed in a highly visible location.
- 2) Store layout should be designed in such a way that customers intending to purchase a box lunch or related item are drawn to the back of the store.
- 3) Even everyday items can appear seasonal if integrated, using a sense of variety, into the overall presentation scheme. Data on sales and customer flow can assist you in devising such a strategy.
- 4) The bottom line is that everyday items are the priority, although you can also set up a special promotion table for seasonal appeal.

These are the findings of convenience store floor management theory.

Now let’s see if these principles can be applied toward the creation of an internet home page.



How Do We Meet? How Do We Form Impressions?

In the 1960s there was an unusual experiment performed in the U.S. to show how small the world is. It went like this: First, an individual living in the Midwest is told various things such as name, occupation and age about a mystery person, someone he doesn't know, who lives on the East Coast. The Midwesterner tells one of his friends, whom he thinks might have something in common with the mystery person, and then that person tells one of his friends, and so on. On average, the chain continues for only about five people before someone realizes they actually know the mystery person on the East Coast. The mystery person is not famous, but just an ordinary person.

Another researcher conducted this same experiment within the confines of a college campus. This time the chain of questions was limited to include only specified students, professors and administrative staff. Even within a single college campus, it still took about five people to make the connection. Compared with half the continental U.S., connecting across a college campus should have much faster.

This shows that such links are greatly affected by social barriers between people, who in the campus experiment, were preselected and from different social classes.

Electronic networks are said to greatly reduce the barriers between social classes. For example, if people have something in common such as a hobby or interest, they usually feel freer to express themselves. So in today's world of electronic networking, what kind of model should we apply toward the dissemination of information?

Social Psychology professor Dr. Yasushi Kawaura of Yokohama City University, author of many books on electronic networks, was pleased to have the opportunity to speak with us on this topic.

"The flow within a network... When I heard that theme what came to mind was a project by another researcher, who concluded "there are three ways to



access a home page." The first is via search engine, the second is from a URL published in a magazine or newspaper and the third is net surfing. Your impression of any given home page as an information source will depend on how you gained access to it.

Perhaps to many users, myself included, networking is assumed to be synonymous with net surfing." Dr. Kawaura, however, suggested we take a broader view of the overall structure of network access.

"Just as an example, let's say an avid fan of the L.A. Dodgers creates a home page and dedicates just one section to posting negative comments or complaints about the Dodgers. Then let's say that other fans find out about the page using a search engine. If that were the case, fans would access the main page before seeing the section for complaints. If someone used a search engine that searches the entire text, however, they could conceivably see the complaint section before anything else on the main page. In this case, the user would not recognize or comprehend the overall structure of the home page and would have a totally different impression from someone who first accessed the main page."

Even if both persons use the same search engine, this kind of situation can occur. Using the second access method of going to a URL listed in a newspaper or magazine, users will see the main page first and there is little chance for misunderstanding. The third access method of net surfing, however, has some potential pitfalls.

"When it comes to net surfing, much depends on the intention of the person who set up the link to the web page. If you're an anti-Dodgers, for example, you might run across links that take you only to the section for negative comments."

If this happens enough, that section could inadvertently become an anti-Dodgers website, without the web page owner knowing it."

Which brings me back to my original point that depending on how a page is accessed, users will develop completely different impressions of it.

So when you're creating a home page, be sure to consider these points to eliminate potential misunderstanding.

"Something else that comes to mind on the theme of networking are studies about our current times, or our zeitgeist. This perspective is advocated by architect Wajiro Kon. For example, he stands at the entrance of a department store and follows customers in an effort to understand their walking patterns. He put a lot of effort into observing everyday scenarios. Now, if we were to employ this methodology toward understanding network users, I think some interesting patterns would emerge. I don't believe anyone is currently doing this kind of research, but studying the behavior of people on a network would surely reveal more about how people find information, and how they interpret it. Such a study would help define the key behavioral elements in how people get information."

Networking Concepts Require New Vocabulary Waiting Communication Public Diary

Dr. Kawaura introduced me to a book, which he co-authored with Kenichi Ikeda, called "Networking Community." One of the experiments described in the book investigates the different images and impressions people have of the same word. Dr. Kawaura describes how different people have a different image of what a network looks like depending on how familiar they are with communications via personal computer. In the experiment, several people are asked to draw an image of what a network looks like. Among people working as system



Dr. Yasuyuki Kawaura
Associate Professor in the Intercultural Department of Yokohama City College. Born in 1951, he received his Ph.D. from Tokyo Metropolitan University's Department of Humanities & Science Research. He is the author of several books, including "Networking Community," "Media Psychology," and "Today's Computer Culture." Home page:
<http://revir.cc.yokohama-cu.ac.jp/>

operators, some drew pictures of people making connections with each other, and others drew doors or windows or other items having some kind of connection to everyday life. People who were not system operators were also tested, and most of them were not familiar with networking by personal computer. They drew pictures that were completely devoid of people and any human elements associated with communications and connections.

"In this experiment, they tried to establish a mental model, a concept from psychology that supposes that everyone has a unique mental image or expectation as to the meaning of the word "network." For one person, accessing a network may bring up an image of walking down the street and meeting other people. For another, it could be a PC is at one end of a spider web spanning the entire globe.

"For those familiar with using search engines to search specific categories, they are more likely to be familiar with the idea of a hierarchy and the concept of one item branching off into many. Flow on a network is completely different from the traffic flow in a department store as the two spaces are very different. Likewise, different individuals have different interpretations of the concept of space. In other words, a simple com-

parison is not an easy task. By the same token, because people have such differing interpretations, it is an interesting subject to look at. A study on how different individuals arrive at different mental images would make a great research project. By the way, I think it would be interesting to do a study on the background behind the different images people have for networks."

So within the larger concept of a network, the function of a home page is rather unique.

"When it comes to communication through a home page, you cannot simply send information to a predetermined destination. The receiver must first come to you of his own volition to receive information before interaction begins. We call this waiting communication. Until now we only had the two concepts of sending and receiving, so to find a word to express this new style of interaction was difficult."

When communication takes a new form, information content begins to undergo subtle changes. On the surface it may look the same, however, it is actually quite different. Dr. Kawaura is currently involved in research on public diaries found on home pages.

"You may wonder who would really want to make their personal thoughts



PostPet It's About Fun, Not Function But Why Didn't We Include A Dog?

● What is a PostPet?

PostPet is a software program that delivers email from your computer to the computer of someone you are sending mail to. It features a "pet" that lives in your computer and delivers your mail. You can reward him with petting or give him a treat for a job well done. If the person receiving mail also has PostPet software, they too can reward the pet for delivering mail. The PostPet learns with each mail delivery and becomes happier as he receives more rewards.

The beta-version of PostPet was launched in January 1997 and by October around 100,000 people had downloaded the software. On Nov. 27 the full PostPet software package was released for sale.

PostPet received the top prize in the Minister of International Trade and Industry's Multimedia Grand Prix '97 competition.

PostPet Park (<http://www.sonet.or.jp/postpet/>)

Visiting this park enables you to meet other PostPet users and even enter your "pet" in a competition. You can also download a treat for him.

The inspiration for PostPet came from media artist Kazuhiko Hachiya, who dreamed that a teddy bear delivered his email to him. He developed this idea and presented it to Sony Communication Network Corporation, where producer Michio Kitamura became very excited about it. Let's find out what Mr. Kitamura found so interesting.

"The main sales at our company are from an internet communication service called So-net. We had originally planned to focus more on establishing an information service, however, we came to realize that if we were only to be a source of information, magazine and television media were probably superior. So we decided to try and add more of an element of fun in our effort to create a successful internet service, which is really based on two-way communication. That's about the time Mr. Hachiya came to our office with his PostPet idea.

The main benefit of PostPet is that it enables beginners to easily send email."

But it seems to me that the way it is actually used goes far beyond this. This pet is more than simply an interface that makes sending email less intimidating to the technophobia.

"In my frequent talks with Mr. Hachiya I often mention that people walking their dogs in the park have an easier time saying hello to one another. This is the same thing as PostPet. Even if you don't have a friend, you can send an email to a stranger because of the common bond that you both have a pet. With this in common, you

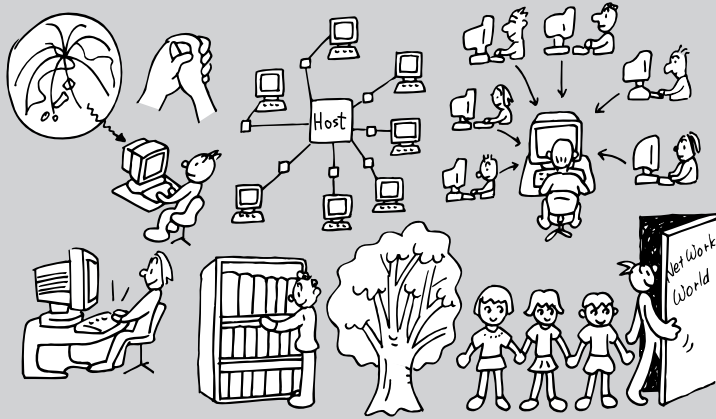
are more apt to take the first step in communication with a stranger."

The PostPet also has a mind of its own and can send mail to the owner or the owner's friends. A question from the pet may be something like this: Do human



■ The question researchers asked regarding network images

What kind of visual image comes to mind when you hear the word "network"? System operators who often work with personal computers drew images of people making connections, or of a user expanding his reach into the outside world. They also drew images of doors or windows, items that could be used to make a connection with other realities. In contrast, people with little familiarity of computers



This article was written by the editorial staff based on research materials provided by "The Studies Group for Computer-Mediated Communities."

"In the very near future, we expect the total volume of communications to explode because its overall threshold level has been lowered. For example, a new piece of software called "PostPet," gives users an electronic pet to deliver their email to recipients. Before this, there was only the telephone, letters and email. But now, beyond the simple transfer of information from one party to another, an element of fun has been introduced through the gimmick of a pet who delivers your mail. This marks the emergence of a new phenomena in the sense that the means of delivering a message has taken on a certain significance all its own. I would like to continue my research into this, yet to reach more meaningful conclusions I know I will have to discard conventional views and research methods."

We are living in an era where every one of us can become the sender of information and learning about the way people access and use electronic networks will be of significance to us all. Using the earlier metaphor of the convenience store, you are no longer simply the customer walking around inside a store called a network—you are a shop owner offering specific information to customers.

public.

But a study that has shown that the majority of people who display their personal thoughts on a home page never used to write down their thoughts before, like in a journal or diary. Now, we are calling this a diary for lack of a better word, even though the contents of this diary are quite different from a conventional one. The new diary is really just a

starting point from which to begin two-way communication with others. It's another example in which no adequate word exists to describe the situation, like in the case of waiting communication." New forms of media are emerging to reflect our new modes of communication. Furthermore, things we previously did not view as a means of communication are becoming just that.

beings live in a three-dimensional world?

"This PostPet has a strong graphic image, however, it also lets you have fun with text messages. Of course you receive mail from the PostPet, but there is also fun to be had from text exchanges between users when the pet is the topic of conversation. We feel this is the kind of software program that beginners as well as experienced email users can both have a lot of fun with. And, of course, it is simple enough for beginners to start using right away."

Even though I thought it was too obvious a question, I decided to ask him if he was consciously competing with the popular "Tamagotchi" toy (an electronic baby that requires food and nurturing from the user).

"I realized something part way through the development process, which was basically not to develop it as much as Tamagotchi. We could have easily added more elements to PostPet to offer a variety of character types or the ability for users to nurture it and help it grow. But I didn't want the user to stay in his or her own world. My main purpose was to promote communication with others."

Because they didn't want to turn PostPet into a game, the current software version features only four pet choices. The company is planning to increase this, however, and they are having a major debate over whether or not to include a dog as a choice.

"The reason we are having a debate over whether or not to include a dog, is that dogs have the image of being obedient to human masters. But the PostPet sometimes does things of its own volition, and some of us are concerned about whether a dog really reflects our vision of PostPet."

So PostPet is a communication tool, but it's more than that. The

debate over whether to include a dog indicates something about the original motive in creating PostPet.

"In a nutshell, what we really wanted to develop was a vehicle to help people realize that the act of communication itself can be fun, and that it's about more than just content. Long ago when the telephone was first available, people used to remind each other to organize their thoughts first before making a call. But as it became commonplace, this organization step disappeared and most people simply used the telephone to chat, without special preparation. I think more people would use email if they viewed it as an opportunity to chat."

With the advent of email, we can clarify in our minds the function of a home page.

"Virtually all PostPet users make repeat visits to the PostPet Park, which is wonderful from our standpoint as we don't really want people to stop by just once, which is normally the case with net surfing. We hope to develop a loyal following of regular users. This means it is critical we update information frequently and provide a section for users to talk with each other."

All of the development team staff members, including Mr. Kitamura, are in their early 30s. The company was launched about a year ago. I asked him what it was like when it first started.

"That's a long time ago..."

— A year is a long time in your kind of business?

"Well, they say that in the world of the internet, time passes seven times faster than in real life.

That means it's already been seven years."

