Intro

Virtual Companies

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Definition

What are virtual companies?

- Employees (developers, administration, marketing, sales, etc.) work at more than one geographical location.
- Employees cannot easily physically contact each other.
- Employees need close collaboration.
- Employees do not work in larger offices, but rather at their own places or in rented

Additional

- Employees do not necessarily speak the same language. (And there are usually no visual clues.)
- Employees may work in different timezones.
- Employees may come from different cultures and economies (work habits, salaries, collaboration style).

Branch Offices?

- Companies with branch offices are not virtual companies (at least not necessarily so).
- For most intents and purposes, the branch offices can be considered separate companies (with a common technical and economical goal).

Technical

- Challenge No. 1: Ensure reliable communication channels.

- Challenge No. 2: Maintain your source code.

Communication

- The actual communication channel is not so important as long as it works reliably and meets your requirements.

- Some aspects: asynchronous vs. synchronous channels, latency, cost

Communication

- Asynchronous channels: Email (low to medium latency, low cost), snail-mail (high latency, medium cost), fax (low to medium latency, low cost)...

- Synchronous channels: Telephone (low to high cost), video conferencing (medium to high cost), IRC (low cost), IP telephony (low cost)

Communication

- Team members must feel comfortable with communication channel (which often excludes video conferencing)

- Institute communication policies: Prefer asynchronous communication where possible, set a maximum response time (to decrease latency).

Communication

- Meeting in person can be effective.
- Weigh costs (travel, loss of work time) against benefits (increased "buy-in", team-building).
- Meeting in person requires considerably more preparation than traditional meetings (otherwise it will be a waste of time).

Revision Control

- Let the software help you - don't develop like the Linux kernel people :-)
- Criteria for revision control systems: Server-based vs. server-less, price, reliability, support, ease-of-use, integration into your work environment.
- From the CVS documentation: A revision-control tool cannot replace

Revision Control

Server-based revision control:

- Repository resides on a central server, users access it via a client software.
- Available for Unix/Linux e.g.: CVS (own client-server protocol or tunneled via ssh), Perforce, ClearCase, even RCS with some help.

Revision Control

Server-less revision control:

- Changes are sent back and forth via an asynchronous communication channel.
- Usually requires more discipline from developers. Very error-prone when done manually.

Revision Control

Hybrid revision control:

- There is a repository in a server-based revision-control system.
- Some (or most) developer do not have online access to their sandbox.
- One central maintainer accepts changes, maintains the sandboxes, sends updated versions back.
- Lots of work for the maintainer, requires discipline from developers, possibly high

Social Challenges

- Knowledge-sharing: There is no WCN (watercooler network).
- Prevent loneliness (really?)
- Team-building

Knowledge

- In non-distributed development: personal communication ("lunch/coffee machine talk"), not possible in virtual companies.
- Possible solution: Web-authoring systems.
- Complex solutions available (CMS, WebDAV, ...)
- Low-cost, low-effort solution: Klarälvdalens Datakonsult's knowledge base ("howto

Keep in Touch!

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- Loneliness is much more emotional than physical.
- Important: Keep everybody involved in as many things as possible.
- Use your colleagues not only as a professional, but also as a social network.

Other challenges

- Labour laws: It is very easy to employ EU/EFTA citizens and almost impossible to employ non-EU/EFTA citizens.

- Possible solution: Independent subcontractors (can lead to legal problems in e.g. Germany and Sweden).

- Each new country brings new forms, laws, general bureaucracy.

Other challenges

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- Taxation: Gross wages are very different because of different tax systems, e.g.:
  - Sweden: Employer pays (almost) all social security fees, gross wages can consequently be lower.
  - Germany: Employer and employee pay one half of the social security fees each.
  - Denmark: Employee pays social security system via the (high) income tax.

Other challenges

- Solution to overcome taxation differences at KDAB: Wages are determined on the basis of total cost per month for the company. This leads to different gross wages, but to more or less the same net wages.

- Potential problem for countries stupid enough not to adopt the Euro: Floating valutas.

Is it economical?

- Higher cost: All kinds of communication, especially travel and postage.
- Lower cost: No high office rents.
- Some people prefer to work this way, are happier and consequently more productive.

Only software?

- Virtual companies are possible in all companies that primarily deal with knowledge:
  - translation offices
  - architecture

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Conclusion

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- Virtual companies can work; there are some that actually do.
- A lot of communication, openness and good-will is required from all parties.
- Virtual companies can have a competitive advantage. Main disadvantage is the suspicion from customers.