

VDOPS Culture

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PURPOSE STATEMENTS

IT Purpose Statement

The Information Services Department of the Fred Hutchinson Cancer Research Center supports the mission of the Center by providing reliable, responsive, cost-effective, service-oriented, well-architected, and secure communication and computing services to organizations or individuals affiliated with the Center, and by advising these affiliates on the use of current and future technologies.

VDOPS Purpose Statement

To design, install, and maintain the voice, video, and data network infrastructure at FHCRC. We recognize that individual departments may choose to handle their department-specific portions of this infrastructure.

OVERVIEW

“Measure twice, cut once.” We specialize in root-cause analysis, believing that understanding the nature of an issue is a prerequisite toward designing, implementing, maintaining, and troubleshooting services.

GOALS

Service-Oriented

The deep infrastructure provided by IT offers value to the Center if and only if it meets a need expressed by some portion of the staff at the Center. We identify and characterize the need we are meeting with each service we design, install, and maintain, and we strive to decommission, retire, and discard services which are no longer meeting needs.

Reliable

We strive to identify and implement ways to increase the reliability of current services.

Responsive

Service to the end-user becomes particularly valuable if it is not only reliable but also responsive, i.e. delivered in a time-frame which meets the end-users’ needs. We strive to design services in

such a way that we can then deliver the results in ways which meet Information Technology's SLA-defined timelines.

Cost-Effective

We strive to characterize the trade-offs between cost and other factors (reliable, responsive, service-oriented, and well-architected) when identifying design choices.

Well-Architected

Because of the rate of change in the IT world, IT solutions, particularly the popular ones, often don't have the gas to deliver reliable, responsive, service-oriented results – we strive to design solutions which are flexible, scaleable, and modular.

Secure

We balance security and usability when designing and operating services.

PRINCIPLES

Reliability and stability are more important than high performance

To date, we have identified few if any business needs at the Hutch which require high-performance computing; however, we have identified many business needs which require dependable and predictable computing. As a result, we optimize for reliability and stability over performance.

Consistency across our environment is more important than localized economy

We reduce costs and increase stability by implementing consistency. We strive to design services which meet Center-wide needs and then implement them in a consistent fashion, resisting the urge to customize regionally in support of some localized optimization.

Simplicity encourages robustness

We believe that the design of cost-effective, reliable, responsive, and service-oriented solutions tend toward simplicity. We strive to simplify their solutions not only during the design phase but also as an iterative process, during the maintenance phase. Typically, we revisit solutions after living with them for a while, repeating the design phase to produce something simpler, iterating as appropriate.

CORE VALUES

Knowledge of the underlying principles and technology is more important than that of specific vendor's products or implementations

We believe that vendors come and go, that attachment to a particular vendor leads to increased costs long-term, and that limiting our understanding to a given vendor leads to analytical blindness. We strive to understand how things work in a vendor-neutral fashion.

Knowledge shared among the group is more valuable than knowledge isolated in an individual

We believe that none of the services we provide to the Center can be effectively designed, installed, and maintained by a single individual. Further, we want to insulate our services from the effect of staff turnover. Finally, we believe that effective design arises from an understanding of the larger picture. As a result, we strive to disseminate what they learn to the relevant communities, whether that be our department, Information Technology, or the Center-wide IT community as a whole, using a range of tactics, from written documentation, e-mail, and Web applications to informal cross-training sessions to publicly advertised seminars.

Understanding how something works leads to robust designs

We believe that root-cause analysis (asking the question “why?” until one reaches a depth from which one can effectively solve a problem) gives us the foundation not only for efficiently solving problems but also for building services which deliver the reliability which the Center needs in order to function optimally.

Consensus-based decision making leads to solutions which meet Center needs

At the scientific level, FHCRC employs consensus-based decision-making – pursuing this strategy at the administrative level brings us into harmony with the culture employed by the Center’s revenue generators. Additionally, we believe that the successful delivery of IT services requires cooperation and collaboration among a myriad of groups, from deep infrastructure people inside Information Technology to service delivery people close to the users to the users themselves. And we believe that cooperation and collaboration are best nurtured by an open, collaborative decision-making process. In our view, services developed and delivered by small groups of people, in isolation, tend to become little used or downright unpopular. We strive to bring openness to all aspects of design, installation, and maintenance, communicating progress to the larger community and inviting attendance and input at each stage of design, installation, and maintenance.

“Power With” Leads to Effective Solutions, “Power Over” Leads to Stasis

Human beings need autonomy with almost as much fervor as they need air, water, and food ... and as any two-year old, or teenager, can demonstrate trivially, you cannot “make” anyone do anything, (though you can “make” yourself and/or the other person wish otherwise). Effective solutions arise not from fear-driven approaches like data manipulation, hiding information, brow-beating, or any of a number of domination-based techniques but rather from the confidence each participant brings to the table, knowing that the group will not threaten his/her autonomy

but rather will *reinforce* it. From this base level of security, each player can contribute his/her best.

“If you can meet with triumph and disaster, And treat those two imposters just the same...”¹

We believe that embarrassment around choices which don't deliver the results we want lead engineers to skew their analysis in ways which detract from the quality of the results. Popular culture, in fact, encourages us to feel shame around such events (typically called “mistakes” or “errors” or “failures”), to hide such experiences, and even to publicly engage in “blame” exercises with each other, in a vain attempt to escape the shaming portion of the experience. We believe that IT solutions, like humans, reach their potential only through an iterative process composed of “mistakes” and that shame leads to stuck patterns in which we repeat the “mistake” again and again. We strive to treat this normal and evolutionary process with openness, communicating to colleagues and end-users the results of each event in ways which reduce the likelihood of the recipients feeling shame or blame, and documenting the lessons learned regardless of the outcome.

The Four “D”s lead to clouded analysis

The Four “D”s of communication (Diagnosis, Denial, Demand, Deserve) act as flags, indicating that the following analysis will likely be clouded by inter-human issues. We strive to employ positive action language (observation, analysis, request) in its place.

Diagnosis

Implying wrongness or badness (insults, blame, put downs, judgments). Implying rightness or goodness (compliments, praise). Both encourage the mind to go into power trips, wherein the speaker gets to 'decide' the 'nature' of the other person. Both encourage the mind to tap into cultural training around domination-based behavior modification.

Denial (of Responsibility)

Denying personal responsibility for our thoughts, feelings, and actions. Frequently combined with phrases like "have to" or "must".

-The actions of others ("I yelled him because he deleted my work.")

-Vague, impersonal forces ("I cleaned up the server because it was necessary")

-Our psychological history, condition, diagnosis, or personal history ("I erase files because I'm compulsive")

-To the dictates of authority ("I lied to the client because the boss told me to.")

-To group pressure ("I started hiding my mistakes because everyone else in the group was doing that.")

¹ “If”, Rudyard Kipling, 1910.

- To institutional policies, rules, and regulations ("I behaved unethically because that's the policy.")
- To sex roles, social roles, or age roles ("I tell people what to do because I'm older than most of these people.")
- To uncontrollable impulses ("I was overcome by my urge to piss him off.")

Demands

A request which implicitly or explicitly threatens some form of blame or punishment if the request is not met.

Deserve

The concept that some actions merit reward and others merit punishment. "He deserved what he got."

Communication leads to cohesiveness

We believe that that humans function best when they know all the relevant facts, and that humans feel safer when they are "in the loop". And that a sense of safety leads people to collaborate and cooperate in coherent ways. We strive to keep both the smaller and larger FHCRC communities informed of relevant information.

TACTICS

- Hardening – the characteristic of a design which reduces the chances that an element will fail
- Fault tolerance – the characteristic of a design which allows for elements to fail without denying service
- Simplicity – the characteristic of a design which reduces the brain cycles needed to install, maintain, or trouble-shoot the service
- Low-maintenance – the characteristic of a design which reduces (ideally eliminates) human time spent on repetitive operational support
- Monitoring – all services will fail, thus, all services should be monitored to reduce the gap between failure and restoration
- Management – all services degrade across time; performance data should be gathered on all systems and trend analysis performed on this data in order to predict the timing of salient future events
- Documentation – written instructions on how to install, maintain, trouble-shoot, and rebuild a service reduce the time it takes to recover from a failure and reduce staff time spent on repetitive operations

- Knowledge transfer – spreading the understanding of how a service functions reduces the time the department spends fixing it when it breaks. And, more subtly, increases the sophistication and reliability of related services and future designs.

SKILLS

Specific

- Network analysis skills, including substantial packet analysis expertise
- PERL Programming
- Familiarity with SNMP-based network management tools
- Familiarity with popular operating systems, notably Windows and Linux

Fuzzy

- Excellent written and oral communication skills
- Excellent interpersonal skills
- Excellent project planning skills
- A thorough approach to documenting designs and procedures
- A rigorous approach to analyzing and resolving complex technical problems
- Independence, self-motivation, ability to work productively with minimal supervision
- Skill at prioritizing, planning, and executing of individual responsibilities
- Clear communication and coordination with peers, end-users, and management
- Initiative at managing personal technical training and career development