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EDUCATION THAT TAKES YOU PLACES

September 16 – 23, 2007

An Alaskan Adventure

Linux Lunacy™ VI

Expand your skills. Chat with the experts. Join our community of kindred spirits on this exotic journey.

Our Speakers are:
Damian Conway, maddog, Andrew Morton, Randal Schwartz, Theodore Ts'o, and Bebo White

Linux Lunacy 6 Seminars

The Conference

The conference fee is \$895 and includes all courses, course materials, and four evenings of Linux Lunacy entertainment and parties.

During our cruise-conference, there will be two (2) three-day "tracks" offered at the same time. The tracks will be configured based on attendee input. However, attendees will be able to freely move among the two tracks, at any time.

Synchronization Primitives and Other Basic Tools in the Linux Kernel (half day)

Speaker: [Andrew Morton](#)

This discussion will cover in some depth a wide range of the low-level tools which are available to Kernel programmers for managing multiprocessor and multithread synchronisation. Topics covered will include spinlocks, read-write locks, mutexes, semaphores, read-write sempahores, bit spinlocks, waitqueues, wakeups, atomic types, the new `local_t' type, read-copy-update etc.

We will also cover the memory management APIs which the core Kernel offers — what the differences are, which API to choose, usage caveats, etc.

We will conclude the discussion with coverage of Kernel development techniques such as defensive programming, use of the various compile-time and runtime code-checking tools and Kernel debugging tools and techniques.

Linux Kernel Development (quarter day)

Speaker: [Andrew Morton](#)

Curious as to how, why, and whose code finds its way into the Kernel? This high-level, after-hours discussion (and Q&A) will cover the various roles and responsibilities of Kernel developers, resourcing, motivational, and management issues and how these have changed over time. Also the kernel's requirements, development, review, and testing processes will be revealed. The audience will come away with an understanding of why Kernel developers do what they do — and how they do it.

Linux Kernel Memory Reclaim (quarter day)

Speaker: [Andrew Morton](#)

In this seminar you will learn about the design and implementation of the 2.6 kernel's caching, swapping, and memory reclaim architecture.

Some of the topics we will cover include:

- page reclaim
- page aging
- the role of swap-cache
- swap-out and swap-in

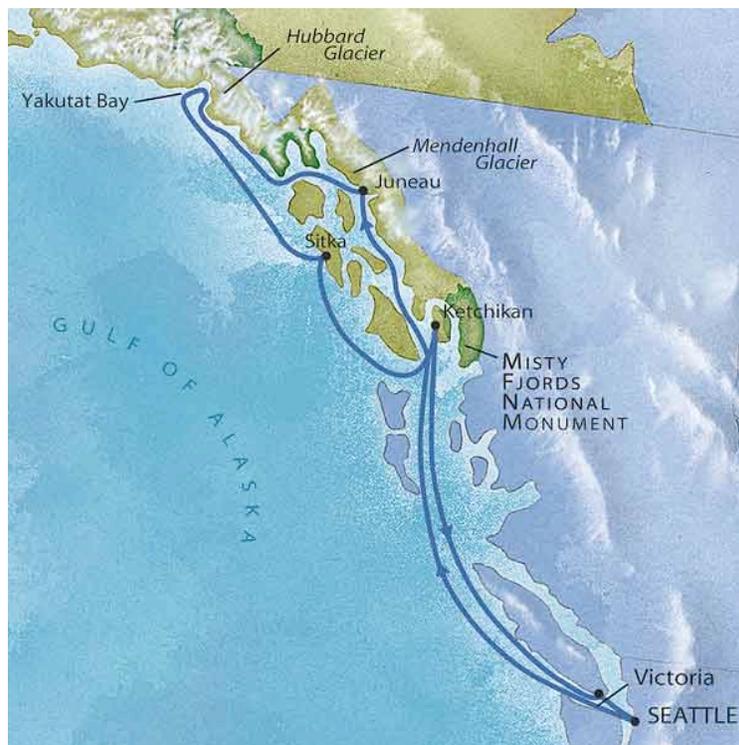
The discussion will also cover the reclaim of VFS cache memory and the balancing between page reclaim and VFS cache reclaim.

Real-Time Linux (half day)

Speaker: [Theodore Ts'o](#)

"Linux and Real-Time?" Sounds like a contradiction in terms? So was "Linux on non-x86 architectures" and "Linux and SMP" at one point. Today, using the latest patches, it is possible to get 50 microsecond or better latencies on real-time tasks on a real-time Linux Kernel while the system is loaded by multiple Kernel compiles, ping floods, and massive disk and network transfers occurring in the background.

This presentation will cover various historical approaches to provide hard- and soft-real-time capabilities on Linux or Linux-like systems, what features are available in the mainline Kernel, and patches such as Ingo Molnar's CONFIG_PREEMPT_RT. It will discuss what techniques are being used to achieve these results, and what the future may bring. Finally, it will explore some of the applications that can take advantage of a real-time Linux system.



DAY	PORT	ARRIVE	DEPART	CONFERENCE SESSIONS
SUNDAY, SEPTEMBER 16	SEATTLE, WASHINGTON	—	4pm	7:15pm, BON VOYAGE COCKTAIL PARTY
MONDAY, SEPTEMBER 17	AT SEA	—	—	8:30am – NOON & 1:30pm – 5pm
TUESDAY, SEPTEMBER 18	GLACIER BAY SCENIC CRUISING	10am	2pm	3pm – 6:30pm
WEDNESDAY, SEPTEMBER 19	JUNEAU, ALASKA	7am	8pm	—
THURSDAY, SEPTEMBER 20	SITKA, ALASKA	8am	5pm	6pm – 8pm
FRIDAY, SEPTEMBER 21	KETCHIKAN, ALASKA	7am	1pm	1:30pm – 5pm & 5pm – 7:30pm
SATURDAY, SEPTEMBER 22	VICTORIA, BRITISH COLUMBIA	6pm	MIDNIGHT	8:30am – NOON & 1:30pm – 5pm
SUNDAY, SEPTEMBER 23	SEATTLE, WASHINGTON	7am	—	

Seminars Continued

Pricing & Booking Information

(Full details:

http://www.geekcruises.com/booking_b/1106_booking.html)

Deposit: \$400 pp, due at time of booking. **Course Fees:** \$895. Only passengers booked through Geek Cruises will be admitted.

Cabin Type:	Cruise Rate (per person)
Better Inside:	\$1,299 [GS* & PC* avail.]
Outside:	\$1,499 [GS & PC avail.]
Better Outside:	\$1,599 [GS & PC avail.]
Outside w/Balcony:	\$1,699 [GS avail.]
Better w/Balcony:	\$1,799 [PC avail.]
Superior Suite:	\$2,099 [PC avail.]
Full Suite:	\$3,199 [PC avail.]

New Features in the ext2/3/4 Filesystem (quarter day)

Speaker: [Theodore Ts'o](#)

The ext2/3/4 filesystem has one of the broadest developer communities, with engineers from IBM, Red Hat, ClusterFS, SuSE, OSDL, and many, many others — and they have been hard at work. Some of the new features that will be discussed will include extents, delayed allocation, persistent preallocation, and support for large disks.

Hidden Secrets of the TCP Protocol (quarter day)

Speaker: [Theodore Ts'o](#)

The Transmission Control Protocol, or TCP has been around for a long time, and we take it for granted. It's just part of the infrastructure on top of which we build ssh, http, ftp, and a whole host of Internet Protocols. But there is a lot of sophisticated engineering and architecture inside the TCP layer. This talk will cover what makes TCP/IP tick, from its retransmission algorithms to Path MTU discovery and everything in between. This talk will also cover how to tune Linux's TCP/IP for better application performance depending on the application's needs.

The pricing above is subject to change. Geek Cruises will generally match the cruise pricing advertised, at the time of booking, offered at the Holland America website. If at the time of booking the cruise line notifies us that the price of cruise fare has *increased*, you will be notified of the new pricing before your reservation is booked.

*PC – Physically Challenged;

GS – [GUARANTEED SHARE \(GS\)](#) Fares:

This plan is for passengers who are coming on a Geek Cruise by themselves and wish to share a cabin with another Geek Cruises passenger in an inside or outside cabin only. The prices are the same as the per person double occupancy rates. Share Passengers who smoke are not to do so in the cabin, unless okayed by fellow roommates. We try to match passengers with someone close in age, whenever possible.

3rd and/or 4th Person Rate: \$699.

Single Occupancy:

150% for inside and outside cabins and 200% for cabins with a balcony (i.e., Outside w/ Balcony and above).

Port Charges, Taxes, & Gratuities:

Port charges (of \$225 per person) are included; taxes are \$71 per person and are additional. Holland America also charges, onboard, \$10 per person per day for gratuities.

Full payment is due on June 1, 2007

(or, if you book after June 1, at the time of booking).

(continued)

Perl 6 for Perl 5 Programmers (two days)

Speaker: [Damian Conway](#)

Perl 6 will be a major improvement on Perl 5 in many ways: syntactically, semantically, performance-wise. This class looks in depth at the features of the new version of Perl, and at many of the programming techniques those features make available. Numerous real-world examples of porting Perl 5 code to Perl 6 are shown.

Day 1, AM: Perl 6 Fundamentals

Overview of the project, virtual machine architecture, compilers, new dereferencing syntax, new sigil syntax, variable declarations, static variables, constants, concatenation operator, Unicode, strictures and warnings, new output statement, interpolation blocks, new heredoc syntax, ranges, string lists, key lists, pairs, string manipulation methods, other operator changes, pipelines, defaulting operators, operator precedence, hyperoperators, reductions, junctions, sets, chainable comparators, smartmatching, variable binding, subroutines, option pairs, switch statement, contextual awareness, filehandles, autochomping, serialization, file slurping.

Day 1, PM: Perl 6 Core features

Introspection, pod rationalization, modules, blocks, closures, and subroutines, implicit parameter lists, argument binding, control statements, topics, C-style for statement, Perl-style for statement, no assignments in conditionals, sorting, operator overloading, stubbing, error variables, exceptions.

Day 2, AM: Perl 6 pattern matching: regexes, rules, and grammars

Classes, attributes, methods, class attributes and methods, implicit invocants, inheritance, submethods, object construction, reflexive method calls, object creation, object destruction, multiple dispatch, roles, subtypes, enums.

Day 2, PM: Object Oriented Perl 6

Regular expressions, unchanged features, modifiers, changed metacharacters, new metacharacters, new regex repetition qualifier, bracket rationalization, variable (non-) interpolation, extensible metasyntax, backslash reform, backtracking control, regex match variable, regex capture variables, hierarchical regex captures, subrule capturing, hypothetical variables, matching against non-strings, regex declarations, named regexes, grammars.

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Outside Staterooms: \$1,499 – \$1,599

Outside with Balcony: \$1,699 – \$1,799

Deck Plan of Our Ship (pdf)

Superior Suite – \$2,099

Full Suite – \$3,199

Seminars Continued

Foreign Shipping Fees and Additional

Payment Information: There is a foreign shipping charge of \$60 (to cover the shipping of your cruise tickets, via FedEx) per foreign residence (\$35 per Canadian residence). There is a \$25 charge for returned checks.

Air Add-ons: Airfare from most major cities is available through the cruise line. You can call our office for this pricing. (These rates include transfers to/from the dock/airport plus transfers to/from your hotel if we've booked the hotel as well.) In most cases, however, you will find better airfares on your own. Online travel sites such as Expedia.com, or Travelocity.com are excellent resources.

Voice over TCP/IP (VoIP) and Asterisk (half day)

Speaker: [maddog](#)

You have heard the hype, now get the scoop on how to save money and improve your love life by taking control of your phone system. Without all the jargon, learn how to set up an Asterisk PBX (Private Branch Exchange ... o.k. a fancy switchboard) using the (relatively) easy to set up "Asterisk at Home". Learn about a variety of VoIP devices and how to tie those into your phone system, including wireless VoIP. Even good for a small business or college dorm, Asterisk allows you to integrate your business with your phone system. Other VoIP services such as Vonage and Skype will be covered. Can you hear me now?

Pre- and Post-cruise Hotel Stays:

Sightsee Seattle from our base, [The Seattle Sheraton](#), and/or meet and greet your fellow Geek Cruisers at our pre-cruise reception (see below). Transfers to/from the ship AND to/from hotel, as well as all taxes, are included in the prices below. All prices are PER PERSON.

	1 night	2 nights	3 nights
Shared double	\$270	\$460	\$650
Single	\$230	\$420	\$610
3rd/4th person	\$65	\$95	\$125

NOTE: Holland America will not accept any booking unless a fully completed Reservation Form is accompanied with a per-person deposit:

http://www.GeekCruises.com/booking_b/ll06_booking.html. Have questions? Want to book voice-to-voice? Please give us a call: 650-787-5665

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Open Source Software — A Collaboration Platform for Web Applications (keynote)

Speaker: [Bebo White](#)

Web development has led to some of the most successful and well-known open source projects. Notable examples include Apache, Mozilla/Firefox, PHP, Zope, and numerous others. These projects demonstrate that open source isn't just about a software license, but about human interaction and individual motivation. It is about sharing ideas and technology implementations. Open standards efforts within the Web research and development community will ensure that open-source software will continue to play a major role in the evolution of Web-based technologies.

Comparison of Distributions (half day)

Speaker: [maddog](#)

Wonder if you should be using Red Hat, Red Hat Enterprise, Fedora, SuSE, Ubuntu, Debian, Xandros, Mandriva, Slackware ... man, Microsoft never made it so confusing — they just TOLD you what to use! But now you have CHOICE, and it is killing you. This talk will go over the features of some of the major distributions and help you decide which distribution is best. From the original author of "Linux for Dummies".

High Performance Computing (full day)

Speaker: [Bebo White](#)

When the term 'High Performance Computing (HPC)' is used these days it is more often than not referring to large "farms" or arrays of small, low-cost computers working together to accomplish a compute-intensive problem rather than to so-called supercomputers. Such "farms" provide high throughput, are scaleable, use inexpensive components and open-source software, and are fault tolerant. Sounds great! How hard can it be to design such a system?

In this seminar you will learn about the different hardware architectures and programming models currently available for building HPC systems. If you are involved with the design or use of HPC systems, this class is for you! The outcome of the tutorial will be your understanding of the role that HPC might play in satisfying your compute needs and requirements.

Topics that will be covered include:

Hardware models

- Conventional computer architecture;
- Shared memory systems such as SMP and CC-NUMA;
- Distributed memory systems such as clusters, grids, and loosely-coupled models.

Software models

- Conventional programming for single memory/single CPU systems;
- Embarassingly parallel — many independent calculations/little interprocessor communication;
- Message passing — intensive interprocessor communication;
- Memory passing — using shared memory data structures.

Introduction to 'git': The Next-Generation Source Code Manager (quarter day)

Speaker: [Randal Schwartz](#)

When you have hundreds of people simultaneously patching 25000 files of the Linux Kernel in sometimes conflicting ways, you might need some scheme or plan to sort all that out before you can build your next kernel and reboot. The Linux team uses "git" for their source code repository management, a homegrown solution that is optimized for highly distributed development, working with huge sets of files, merging independent work at multiple levels, and seeing who broke what. (Git has also since been notably adopted by the Cairo, x.org, and Wine teams, and is being transitioned to by the Mozilla codebase.) In my talk, I describe what "git" is and isn't, and why you should use it instead of CVS, Subversion, SVK, Arch, Darcs, Mercurial, Monotone, Bazaar, and just about every other repository manager. I'll also walk through the basic concepts so that the manpages might start making sense.