The Cathedral and the Bazaar

by Eric S. Raymond $Date: 1998/08/11 20:27:29 $

Sto paron analuw ena epityxhmeno project anoixtou kwdika (open source), to fechmail. Ayto htan poy epaije to rolo enos eskemmenoy test merikwn ekplhktikwn 8ewriwn gurw apo thn texnologia logismikou (software engineering) opws ypodeixthkan apo thn istoria toy Linux. Pragmateuomai aytes tis 8ewries me toys oroys dyo 8emeliaka diaforetikwn styl anaptyjhs, to Ka8edriko montelo (cathedral) yio8ethmeno apo to megalutero kommati toy emporikou kosmoy enantion toy Pazariwtikoy monteloy (bazaar) toy kosmoy toy Linux. Deixnw oti ayta ta montela katey8unontai apo anti8etes ypo8eseis gia thn fush ths diadikasias aposfalmatwshs logismikou. Sthn synexeia dhmioyrgw ena yposthriktiko epixeirhma apo thn empeiria toy Linux gia thn ypo8esh "exontas arketa matia, ola ta bugs einai rhxa", proteinw paragwgikes analogies me alla ayto-dior8wsima systhmata apo egwistikous syntelestes kai kleinw me ejereunhsh twn synepeiwn ayths ths diorashs gia to mellon toy logismikou.

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1 O Ka8edrikos kai to Pazari.

To Linux einai anatreptiko. Poios 8a skeftotan, akomh kai prin apo pente xronia , oti ena leitoyrgiko susthma pagkosmias embeleias 8a ftiaxnotan, san apo mageia, apo tmhmatika hacking poy ekanan xiliades programmatistes skorpismenoi s' olo ton planhth, enwmenoi mono me ta adunama nhmata toy Internet;

Kaneis, bebaia. Thn wra poy ma8aina gia to Linux stis arxes toy 1993, asxoloumoyna hdh me to Unix kai ton programmatismo anoixtou kwdika [open source]epi deka xronia. Hmoyn apo toys prwtoys dianemhtes ths GNU sta mesa ths dekaetias toy '80. Eixa kataskeyasei kai dia8esei enan sebasto ari8mo logismikou anoixtou kwdika sto diktyo, anaptussontas h synanaptussontas polla programmata (nethack, Emacs VC kai GUD modes, xlife kai alla) poy paramenoyn se eyreia xrhsh ews shmera. Nomiza pws hjera pws eixan ginei ol' ayta.

To Linux anetrece polla ap' ayta poy nomisa oti hjera. Yposthriza to "Eyaggelio" twn mikrwn ergaleiwn toy Unix, thn grhgorh anaptyjh prwtotupwn kai ton ejeliktiko programmatismo [evolutionary programming] gia xronia. Pisteya, omws, oti yparxei mia sygkekrimenh krisimh polyplokothta panw apo thn opoia apaitountan mia perissotero kentrikh, apriori proseggish. Pisteya oti ta pio shmantiko logismiko (leitoyrgika systhmata kai pragmatika megala ergaleia opws to Emacs) eprepe na xtistoun san ka8edrikoi naoi, prosextika ftiagmenoi apo memonwmenoys eidikous [wizards] h mikres omades apo "magoys" [mages] poy na doyleuoyn se apolyth apomonwsh, xwris na dhmosieuontai oi beta prin thn wra toys.

To styl programmatismou toy Linus Torvalds- prwimes kai ana mikra diasthmata ekdoseis logismikou, metabibaseis toy ka8e ti, anoxh sto zhthma ths eterogenous megalhs anameijhs - htan ekplhjh. Den emoiaze me 8rhskeytiko ka8edriko nao - h koinothta toy Linux emoiaze perissotero me ena megalo fluaro pazari diaforetikwn praktikwn kai proseggisewn (poy symbolizontai me arxeio8hkes [sites] logismikou gia Linux, sta opoia mporei na syneisferei o *ka8enas*) apo to opoio ena synepes kai sta8ero susthma mporouse na ftiaxtei mono meta apo mia akoloy8ia 8aymatwn.

To gegonos oti ayto to pazari edeixne na doyleuei kai na doyleuei kala, htan ena jeka8aro sok. Ka8ws o kairos pernouse ki egw ma8aina, douleya sklhra oxi mono se sygkekrimena projects, alla kai prospa8wntas na katalabw giati o kosmos toy Linux oxi mono den epefte se sugxysh alla edeixne na dynamwnei synexws, me mia taxuthta poy den thn fantazontan oi arxitektones ka8edrikwn nawn.

Sta mesa toy 1996 arxisa na katalabainw. Moy do8hke h eykairia na dokimasw thn 8ewria moy me thn morfh enos project anoixtou kwdika poy 8a prospa8ousa na 8esw se leitoyrgia me to styl toy pazariou. Etsi ki ekana - kai h epityxia htan megalh.

Sto ypoloipo meros aytou toy ar8roy 8a afhgh8w thn istoria aytou toy project kai 8a to xrhsimopoihsw gia na proteinw kapoies 8eseis gia thn apotelesmatikh anaptyjh programmatwn anoixtou kwdika. Polla apo ayta den ta prwtoema8a mesa apo to kosmo toy Linux, alla 8a doume pws aytos toys dinei ena idiaitero nohma. An eimai swstos stis apoceis moy, 8a sas boh8hsoyn na katalabete ti akribws einai ayto poy kanei thn koinothta toy Linux mia phgh toso kalou logismikou-kai 8a sas boh8hsei na ginetai kai eseis oi idioi pio paragwgikoi.

2 To Mhnyma Prepei na Perasei.

Apo to 1993 exw thn ey8unh ths texnikhs pleyras enos mikrou Paroxea eleu8erhs prosbashs, poy onomazetai Chester County InterLink (CCIL) sto Dytiko Tsester ths Pensylbania (eimai synidryths toy CCIL kai kataskeuasa to diko mas monadiko polyxrhstiko bulletin-board software –mporeite na to deite kanontas telnet sto *locke.ccil.org* `<telnet://locke.ccil.org>`. Shmera yposthrizei sxedon treis xiliades xrhstes se trianta grammes). Ayth h doyleia moy epetrepe eleu8erh prosbash sto diktyo epi 24wroy basews mesw ths 56K grammhs toy CCIL. in fact, it practically demanded it!

Epomenws, hmoyn ma8hmenos sthn xrhsh toy amesoy hlektronikou taxydromeioy. Gia kapoioys periplokoys logoys htan duskolo na syndesw me SLIP ton ypologisth poy exw sto spiti moy (snark.thyrsus.com) kai ton CCIL. Otan, telika ,ta katafera anakalyca oti prepei na syndeomai (telnet) periodika ston "locke" gia na paralambanw thn allhlografia moy. Ayto poy h8ela gia thn allhlografia moy htan na paradidetai ston snark etsi wste na mporw na eidopoioume otan ftanei kai na mporw na thn xeiristw xrhsimopoiwntas ola ta topika ergaleia moy.

H aplh prow8hsh mhnymatwn me to sendmail den douleye, epeidh o proswpikos ypologisths moy den einai synexws sto diktyo kai den exei statikh dieu8ynsh IP. Ayto poy h8ela htan ena programma poy 8a epairne ton elegxo panw apo thn SLIP sundesh moy kai 8a metefere thn allhlografia moy na thn paralabw topika. Hjera oti tetoia programmata yphrxan kai oti ta perissotera xrhsimopoiousan ena aplo prwtokollo poy legetai ROR(Post Office Protocol). Kai hmoyn arketa sigoyros oti yphrxe enas ROR3 serber poy symperilambanetai sto BSD/OS leitoyrgiko poy briskotan ston "locke".

Xreiazomoyn enan ROR3 client. Etsi, synde8hka sto diktyo kai brhka enan. Sthn pragmatikothta Brhka treis tesseris. Xrhsimopoihsa pop-perl gia ligo, alla elleipe mia shmantikh dynatothta, H dynatothta na metatrepontai oi diey8unseis twn paralambanomenwn mhnymatwn wste h dynatothta apanthshs [reply] na doyleuei swsta.

Idou to problhma: ypo8este oti kapoios poy legetai "joe" ston "locke" moy esteile ena mhnyma [mail] An paralabw to mhnyma ston snark kai meta epixeirhsw na apanthsw, to programma hlektronikou taxydromeioy 8a prospa8hsei na to steilei s' enan "joe" poy den yparxei ston snark. H taktikh metatrophs me to seri twn diey8unsewn pros apanthsh [Reply addresses] ston "@ccil.org" grhgora apodeix8hke polu duskolh.

Htan kati poy o ypologisths eprepe opwsdhpote na kanei gia mena. Kanenas, omws, apo toys yparxontes ROR clients den hjere pws! Ki erxomaste sto prwto mas ma8hma:

1) Ka8e kalh doyleia ston xwro toy logismiko arxizei me thn proswpikh fagoura toy programmatisth.

Isws ayto 8a eprepe na einai olofanero (apo palia exei eipw8ei, "H anagkh einai h mhtera ths efeureshs") alla, polu syxna, oi programmatistes jodeuoyn tis meres toys pasxizontas gia ena merokamato ftiaxnontas efarmoges poy oute xreiazontai oute toys endiaferoyn. Oxi, omws, kai ston kosmo toy Linux–pragma poy ejhgei giati h mesh poiothta toy logismikou gia Linux einai toso ychlh.

Ti nomizete, loipon; Oti bouthja sthn dinh ths kwdikopoihshs enos olokainoyrgioy ROR3 client gia na antagwnistei toys yparxontes; Me tipota ston kosmo! Erija mia prosektikh matia sta ROR utilities poy eixa sta xeria moy, kai anarwth8hka "poio ap' ola einai plhsiestero se ayto poy 8elw;".

2) Oi kaloi programmatistes jeroyn ti na gracoyn. Oi spoydaioi jeroyn ti na janagracoyn (kai na janaxrhsimopoihsoyn).

An kai den isxyrizomai oti eimai spoydaios programmatisths, prospa8hsa na moiasw tetoios. Ena shmantiko gnwrisma twn spoydaiwn programmatistwn einai h eggenhs toys tempelia. 3eroyn oti xreiazetai ena programma oxi gia na pernane oi xrhstes thn wra toys alla gia na exoyn kapoia apotelesmata kai oti einai sxedon panta eykolotero na jekinas apo mia merikh lush apo to na jekinas apo to mhden.

O *Linus Torvalds* `<http://www.earthspace.net/~esr/faqs/linus>`, gia paradeigma, den egrace to Linux ap' thn arxh. Anti8eta ‚jekinhse na janaxrhsimopoiei kwdika kai idees ap' to Minix, ena mikro Unix-oides leitoyrgiko gia mhxanes 386. Telika, o kwdikas Minix apomakrun8hke h janagrafthke entelws–oso, omws, htan ekei leitoyrgouse san h skala gia to brefos poy, telika, egine to Linux.

Sto idio pneuma, arxisa na caxnw gia ena ROR utility poy 8a eixe kalo kwdika, gia na moy xrhsimeusei san bash programmatismou.

H paradosh eleu8eroy kwdika toy Unix htan panta filikh pros thn epanaxrhsimopoihsh kwdika (gi' ayto ton logo to GNU project epeleje to Unix san basiko leitoyrgiko, para tis sobares nomikes epifylajeis gia to idio to leitoyrgiko). H koinothta toy Linux w8hse ayth thn paradosh sxedon sta texnologika ths oria. Prosferei se oloys terabytes eleu8eroy kwdika. Etsi, to na afierwneis ligo xrono gia na breis thn katallhlh efarmogh kapoioy alloy einai perissotero pi8ano na dwsei 8etika apotelesmata ston kosmo toy Linux, para opoydhpote allou.

Etsi egine kai sthn dikh moy periptwsh. Mazi me ayta poy brhka nwritera, h deuterh ereyna moy katelhje m' ena sunolo ennea ypochfiwn–to fetchpop, to PopTart, to get-mail, to gwpop, to pop-perl, to pimp, to popc, to popmail kai to upop. Ayto poy egkatesthsa prwto htan to 'fetchpop' toy Seung-Hong Oh. Ebala to xarakthristiko header rewrite s' ayto ki ekana kai kapoies alles beltiwseis tis opoies o dhmioyrgos toy symperielabe sthn ekdosh 1.9.

Liges bdomades argotera, omws, skontaca ston kwdika toy 'popclient' toy Carl Harris kai anakalyca oti eixa problhma. An kai to 'fetchpop' eixe merikes kales idees ston kwdika toy (opws thn leitoyrgia se katastash daemon), mporouse na diaxeiristei mono ROR3 kai htan erasitexnika kwdikopoihmeno (o Seung-Hong Oh htan enas ejypnos alla apeiros programmatisths kai ta duo ayta xarakthristika toy ekdhlw8hkan sto programma ayto). O kwdikas toy Carl htan kaluteros, alh8ina epaggelmatikos kai sta8eros, alla apo to programma toy eleipan polla shmantika kai mallon duskola sthn ylopoihsh toys xarakthristika poy hdh eixe to fetchpop (symperilambanomenwn ki aytwn poy kwdikopoihsa egw).

Na ta parathsw h na epimeinw; An ta paratousa, 8a eprepe na petajw ton kwdika poy eixa hdh ftiajei se antallagma mias kaluterhs programmatistikhs bashs.

Ena praktiko kinhtro gia na ta parathsw htan h paroysia yposthrijhs pollaplwn prwtokollwn. Apo ta prwtokolla poy xrhsimopoioun oi diametakomistes taxydromeioy to ROR3 htan to pio koino, alla oxi to monadiko. To fetchpop kai oi alloi antagwnistes toy den yposthrizan ROR2, RPOP h APOP kai skeftomoyn, hdh, na pros8esw IMAP (Internet Message Access Protocol, to pio kainourio kai pio isxyro prwtokollo taxydromeioy) *IMAP* `<http://www.imap.org>`, mono kai mono gia thn eyxaristhsh moy.

Omws, eixa enan pio 8ewrhtiko logo gia na pisteuw oti, to na ta parathsw 8a htan kalh idea, kati poy ema8a polu prin to Linux.

3)"Sxediazeis na aporriceis kapoio programma; 8a to kaneis, outws h allws". (Fred Books, "The Mythical Man-Month", chapter 11)

H, gia na to pw alliws, synh8ws den katalabaineis to problhma mexri th stigmh poy ylopoieis mia lush. Thn deuterh fora isws jereis perissotera gia na prajeis swstotera. Etsi, an 8eleis na eisai swstos, etoimasoy na arxiseis ap' thn arxh *toylaxiston* mia fora.

Loipon (eipa ston eayto moy) oi allages poy ekana sto fetchpop htan h prwth prospa8eia. Etsi, ta parathsa.

Meta thn paradosh toy prwtoy synoloy dior8wtikwn paketwn kwdika gia to popclient [popclient paches] poy esteila ston Carl Harris stis 25 Ioynioy 1996, anakalyca oti eixe xasei to endiaferon toy gia to popclient ligo kairo prin. O kwdikas htan ligo skorpios, me mikra bugs edw ki ekei. Eixa polles allages na kanw kai katelhja grhgora sto oti to pio logiko pragma poy eprepe na kanw htan na analabw to programma.

Sxedon xwris na to prosejw, to project klimakw8hke. Den 8a katapianomoyn allo me ashmanta dior8wtika paketa [patches] gia toys yparxontes ROR clients. 3ekinhsa na doyleuw panw s' enan ap' aytous kai oi idees strimwxnontan mesa sto myalo moy kai hjera oti, pi8anon, na odhghsoyn se megales allages.

Se mia koyltoura logismikou poy en8arrunei thn apo koinou kwdikopoihsh [code-sharing], aytos einai enas fysikos tropos anaptyjhs enos sxedioy. Energousa ws ejhs:

4) An h symperifora soy einai swsth, 8a synanthseis endiaferonta problhmata.

H symperifora toy Carl Harris, omws, htan akomh pio shmantikh. Antilhf8hke oti

5) Otan ena programma pauei na s' endiaferei, to teleytaio soy ka8hkon einai na to paradwseis s' enan ikano diadoxo.

Xwris pote na xreiastei na to syzhthsoyme, o Carl ki egw jerame oti eixame ton koino stoxo na dwsoyme tis kaluteres luseis. To mono erwthma kai twn duo, htan an hmoyn katallhlos gi' ayth thn doyleia. Mia fora poy toy edeija oti hmoyn, antedrase gennaiodwra. Hlpiza na antidrasw ki egw etsi, otan 8a erxotan h seira moy.

3 H Spoydaiothta toy na Exeis Xrhstes.

Etsi, klhronomhsa to popclient. To idio shmantiko htan oti klhronomhsa kai toys xrhstes toy. Einai polu kalo na exeis xrhstes ki oxi mono epeidh dhlwnoyn pws ikanopoieis mia anagkh toys, h oti kaneis kati swsto. An antimetwpis8oun katallhla, mporoun na ginoyn synergates sthn anaptyjh ths efarmoghs.

Mia allh dunamh ths paradoshs toy Unix, poy to Linux w8ei sta oria ths, einai oti polloi xrhstes einai epishs kai hackers. Epeidh o phgaios kwdikas einai eleu8eros, mporoun na ginoyn *apotelesmatikoi* hackers. Kati tetoio mporei na apodeix8ei ejairetika xrhsimo gia thn meiwsh toy xronoy aposfalmatwshs [debugging]. Me ligh en8arrynsh, oi xrhstes sas 8a diagnwsoyn problhmata, 8a proteinoyn dior8wseis kai 8a boh8hsoyn sthn beltiwsh toy kwdika, polu pio grhgora apo to na to kanate monos sas xwris boh8eia.

6) H antimetwpish twn xrhstwn san synergates programmatistes einai o ligotero epikindynos dromos pros thn grhgorh beltiwsh toy kwdika kai thn apotelesmatikh aposfalmatwsh.

H dunamh ayths ths apochs eukola mporei na ypoektimh8ei. Sthn pragmatikothta, polloi apo emas ston kosmo toy anoixtou kwdika ypoektimoume se dramatiko ba8mo to poso kalutera 8a ayjanomastan se ari8mo xrhstwn ki enantia sthn polyplokothta twn systhmatwn, mexri otoy o Linus Torvalds mas edeije oti ta pragmata mporoun na einai kai diaforetika.

Nomizw oti to pio ejypno kai apotelesmatiko kator8wma [hack] toy Linus, den htan h kataskeyh toy idioy toy pyrhna toy Linux alla, mallon, h efeuresh toy monteloy anaptyjhs Linux. Otan, paroysia toy, ejefrasa ayth thn apoch ekeinos xamogelase kai sigana epanelabe kati poy syxna elege: "Basika, eimai polu tempelhs an8rwpos poy toy aresei na toy anagnwrizoyn pragmata poy alloi an8rwpoi ekanan". Tempelhs san gatos. H, opws 8a elege o Robert Heinlein, polu tempelhs gia na apotuxei.

Ek twn ysterwn, ena prohgoumeno ths me8odoy ki epityxias toy Linux mporei na 8ewrh8ei h anaptyjh ths biblio8hkhs GNU Emacs Lisp kai twn arxeiwn kwdika Lisp [Lisp code archives]. Se anti8esh me to ka8edriko-megaleiwdes styl toy C pyrhna toy Emacs kai twn perissoterwn ypoloipwn ergaleiwn FSF, h ejelijh toy kwdika ths Lisp htan reysth kai ejarthmenh apo toys xrhstes. Diafores idees kai leitoyrgies prwtotupwn syxna janagrafontan treis h tesseris fores prin katalhjoyn se mia sta8erh morfh. Kai oi xalares synergasies, mesw toy Internet, ala Linux, hsan syxnes.

Pragmatika, to pio epityxes proswpiko kator8wma mou, prin apo to fetchmail, htan isws to Emacs VC mode, mia Linux-oidhs synergasia mesw hlektronikou taxydromeioy triwn an8rwpwn, ek twn opoiwn mono enan (ton Richard Stallman, ton kataskeyasth toy Emacs kai idryth toy *FSF* `<http://www.fsf.org>`) gnwriza ws ekeinh th mera. Htan mia leitoyrgia front-end gia SCCS, RCS kai, argotera, CVS mesa apo to Emacs, poy epetrepe xeirismous elegxoy ekdoshs "me ena aggigma" ["one-touch"]. Anaptux8hke apo mia mikrh, axarh leitoyrgia sccs.el, poy eixe gracei kapoios allos. Kai h anaptyjh toy VC petyxe, epeidh, anti8eta me to idio to Emacs, o kwdikas toy Emacs Lisp mporouse na perasei grhgora mesa apo diadikasies ekdoshs / dokimhs / beltiwshs.

Ena anapantexo, deytereuwn apotelesma ths politikhs toy FSF gia nomimh sundesh kwdika mesa sto GPL htan oti, ginotan diadikastika olo kai pio duskolo gia thn FSF na xrhsimopoihsei thn xalarh / pazariwtikh leitoyrgia, afou oi an8rwpoi ths FSF pisteyan oti prepei na apokthsoyn copyright efarmoghs gia ka8e jexwristh dianomh perissoterwn apo eikosi grammwn kwdika, wste na prostatecoyn ton kwdika GPL apo toys nomoys gia to copyright. Osoi askhsan pneymatika dikaiwmata xrhsimopoiwntas tis adeies twn konsortsia BSD kai MIT X den exoyn tetoia problhmata. Den prospa8oun na ejasfalisoyn dikaiwmata, poy o ka8enas 8a mporouse na exei kinhtra na prokalesei.

4 Ekdoseis Nwris, Ekdoseis Syxna.

Oi prwimes kai ana mikra xronika diasthmata ekdoseis einai krisimo meros toy monteloy anaptyjhs toy Linux. Oi perissoteroi programmatistes (symperilambanomenoy kai emena) pisteyan oti ayto einai mia kakh politikh gia megalutera apo ta tetrimmena projects, epeidh oi prwimes ekdoseis einai sxedon ej orismou gemates bugs kai to mono poy den epi8ymeis einai na ejantleis thn ypomonh twn xrhstwn soy.

Ayth h apoch enisxye thn genikh apodoxh enos "ka8edrikou" eidoys anaptyjhs. An o kurios stoxos einai na synantoun oi xrhstes oso to dynaton ligotera bugs, tote giati na ekdideis mia fora ka8e ejh mhnes (h kai ligotero syxna) kai meta na doyleueis sklhra (like a dog) gia na apallax8eis ap' ta bugs; O pyrhnas toy Emacs C ftiaxthke m' ayto ton tropo. Enw anti8eta, h biblio8hkh Lisp oxi, ayto synebh epeidh yphrxan energa arxeia Lisp ejw ap' ton elegxo toy FSF, sta opoia mporouse kaneis na anatrejei gia na brei nees ekdoseis toy kwdika, anejarthta ap' toys kukloys ekdosewn toy Emacs.

H pio shmantikh ap' aytes tis arxeio8hkes, h elisp toy Oxaio, proeblepe to pneuma kai polla ap' ta xarakthristika twn shmerinwn megalwn arxeio8hkwn toy Linux. Alla ligoi apo mas skeftontan pragmatika polu gia to ti kaname, h gia to ti shmaine h uparjh aytwn twn arxeio8hkwn gia to problhma toy "ka8edrikou" monteloy anaptyjhs toy FSF. Ekana mia sobarh prospa8eia gurw sto 1992 na prosarthsw megalo meros toy kwdika toy Oxaio sthn epishmh biblio8hkh toy Emacs Lisp. Mphka se politikous mpelades kai h apotyxia moy htan megalh.

Omws, ena xrono meta, ka8ws to Linux ginotan eyrutera gnwsto, egine jeka8aro oti kati diaforetiko kai ygiestero symbainei. To anoixto monteloy anaptyjhs toy Linus htan to akrws anti8eto toy "ka8edrikou" monteloy. Ekanan thn emfanish toys oi arxeio8hkes sunsite kai tsx-11 ka8ws kai pollaples dianomes. Ki ol' ayta odhgoumena apo mia anapantexh syxnothta ekdosewn toy pyrhna toy systhmatos.

O Linus antimetwpize toys xrhstes toy san syn-programmatistes me ton kalutero dynato tropo:

7.Ekdoseis nwris, ekdoseis syxna kai akoy toys xrhstes soy.

H kainotomia toy Linus den htan toso ayto (kati tetoio synebaine gia polu kairo ston kosmo toy Unix), alla h klimakwsh toy se ba8mo poy plhsiaze thn periplokothta ths pros anaptyjh efarmoghs. Ekeinh th xronia (peri to 1992) den toy htan agnwsth h taktikh na ekdidei neo pyrhna ka8e mera! Ayth h prospa8eia petyxe epeidh aneptysse thn bash twn syn-programmatistwn toy kai xrhsimopoiouse thn dunamh toy Internet gia synergasia pio kala apo ka8e allon.

Alla *pws* ta katafere; Kai htan kati poy mporousa na mimh8w h basizotan se kapoia monadikh eyfyia toy Linus Torvalds;

O Linus htan enas polu kalos hacker (posoi apo emas 8a kataskeuazan enan paragwgika poiotiko pyrhna leitoyrgika systhmatos;). To Linux den htan kanena tromero alma pros ta empros. O Linus den einai (h oxi akoma) kamia idiofyia sto na sxediazei opws, as poume, o Richard Stallman h o James Gosling (NeWS kai Java). Emena moy fainetai oti o Linus einai enas eyfyhs programmatisths, me mia ekth ais8hsh na apofeugei ta bugs kai programmatistika adiejoda kai eukola briskei to pio suntomo dromo ap' to shmeio A pros to shmeio B. Pragmatika, oloklhros o sxediasmos toy Linux apopneei ayth thn poiothta kai antanakla thn oysiastika synthrhtikh kai aplopoihtikh proseggish toy Linus.

An, loipon, oi grhgores ekdoseis kai h plhrhs xrhsh toy Internet den hsan tyxaia gegonota alla oloklhrwmena merh ths dioratikothtas toy Linus, poia htan h prwtotypia toy;

Gia na to pw apla, h erwthsh apantatai monh ths. O Linus kratouse toy hackers/xrhstes synexws se yperentash kai toys antameibe-se yperentash mesw toy project h diathrwntas ena egwistiko kommati ths olhs drashs kai toys antameibe me thn sta8era (sxedon *ka8e mera*) beltiwsh ths ergasia toys.

O Linus skopeye amesa sthn megistopoihsh toy ari8mou an8rwpowrwn sthn katarghsh twn bugs kai sthn anaptyjh, akomh kai me pi8ano kostos thn asta8eia toy kwdika h thn axrhsteysh ths bashs twn xrhstwn toy, an ena sobaro bug apodeiknyotan ati8aso. O Linus symperiferotan san na pisteye sto ejhs:

8. Dedomenhs mia megalhs bashs dokimastwn beta kai syn-programmatistwn, sxedon ka8e problhma grhgora 8a entopis8ei ki ena fix 8a kanei thn emfanish toy.

H , ligotero typika, "exontas arketa matia, ola ta bugs einai rhxa". To allaja se: "O Nomos toy Linus".

H arxikh moy skech htan oti, ka8e problhma "8a ginei fanero se kapoion". O Linus apanthse legontas oti, to proswpo poy katalabainei kai dior8wnei to problhma den einai anagkaia h synh8ws to proswpo poy prwto to xarakthrizei. "Kapoios briskei ena problhma", leei, "kai kapoios *allos* to katalabainei. Kai h anakalych toy problhmatos einai h megaluterh proklhsh". To zhthma, omws, htan oti kai ta duo eteinan na ginontai taxutata.

Edw, pisteuw, oti brisketai h kentrikh diafora poy ypogrammizei ta duo styl programmatismou, to ka8edriko kai to styl pazariou. Apo thn apoch toy ka8edrikou programmatisth, ta bugs kai ta alla problhmata programmatismou einai aproblepta, upoyla, ba8ia fainomena. Xreiazontai mhnes leptomerous ejetashs apo merikous afosiwmenoys an8rwpoys gia na kataskeyasoyn empisto kwdika. Gi' ayto kai ta megala dialeimmata metaju twn ekdosewn kai h anapofeykth apogohteysh otan oi ekdoseis aytes, poy toso kairo perimeneis, den einai teleies.

Ap' thn apoch toy se "styl pazariou" programmatismou, ta bugs einai genika epipolaia fainomena-h, toylaxiston, katalhgoyn na ginoyn epipolaia otan ekti8entai se xilioys anypomonoys syn-programmatistes poy meletoun ka8e nea ekdosh. Etsi, kaneis syxnes ekdoseis gia na kerdiseis perissoteres dior8wseis kai san deytereuon kerdos, exeis ligotera na xaseis an paroysiastei kapoia peristasiakh tsapatsoylia

An o "Nomos toy Linus" einai esfalmenos, tote ka8e susthma poy einai toso periploko oso o pyrhnas toy Linux, poy "mastoreuetai " apo tosa xeria, 8a eprepe na katarreei katw apo to baros twn aprobleptwn kakwn allhlepidrasewn kai kala krymmenwn bugs. An, apo thn allh einai swstos, ejhgei ikanopoihtika thn sxetikh apoysia bugs apo to Linux.

Ws pros ayto, den 8a eprepe na apotelei ekplhjh. Oi koinwniologoi prin apo xronia anakalycan oti h mesh gnwmh enos synoloy isodunama eidikwn (h isodunama anidewn) parathrhtwn einai ligo perissotero ajiopisth apo ekeinh enos monadikou tyxaia epilegmenoy parathrhth. Ayto apokaleitai "Fainomeno twn Delfwn". Fainetai oti, ayto poy apedeije o Linus einai oti to fainomeno ayto briskei efarmogh sthn apomakrynsh twn bugs apo ena leitoyrgiko susthma - oti to Fainomeno twn Delfwn mporei na elegjei thn programmatistikh polyplokothta, akomh kai sto epipedo polyplokothtas enos pyrhna leitoyrgikou systhmatos.

Eimai ypoxrewmenos ston Jeff Dutky (dutky@wam.umd.edu) poy ypedeije oti o Nomos toy Linus mporei na parafras8ei se "H Katarghsh twn Bugs Mporei na Parallhlis8ei". O Jeff parathrei oti, an kai h katarghsh twn bugs apaitei apo aytous poy to pragmatopoioun na epikoinwnoun me kapoion synergazomeno programmatisth, den apaitei shmantiko syntonismo metaju twn prwtwn. Etsi, h katarghsh twn bugs den peftei sthn pagida ths idias deyteroba8mias polyplokothtas kai ejodwn management poy ka8istoun thn aujhsh twn programmatistwn sthn ergasia problhmatikh.

Sthn prajh, h 8ewrhtikh apwleia apotelesmatikothtas ejaitias toy diplasiasmou ths ergasias twn programmatistwn gia thn katarghsh twn bugs sxedon pote den apasxolei ton kosmo toy Linux. Ena apotelesma ths "politikhs syxnwn kai prwimwn ekdosewn" einai h elaxistopoihsh tetoiwn diplasiasmwn me thn grhgorh anadrastikh [fed-back] diadosh twn dior8wsewn.

O Brooks ekane mia parathrhsh sxetika me ekeinh toy Jeff: "To synoliko kostos synthrhshs enos eyrews xrhsimopoioumenoy programmatos einai, typika, to 40% h kai perissotero toy kostoys kataskeyhs toy. Ayto to kostos ephreazetai polu apo ton ari8mo twn xrhstwn. *Perissoteroi xrhstes briskoyn perissotera bugs*".

Perissoteroi xrhstes briskoyn perissotera bugs, epeidh h pros8hkh perissoterwn xrhstwn pros8etei perissoteroys diaforetikous tropoys dokimwn toy programmatos. Ayto to fainomeno enisxuetai otan oi xrhstes einai syn-programmatistes. Ka8e programmatisths proseggizei thn ergasia xarakthrismou toy bug me elafra diaforetika antilhptika ki analytika ergaleia, apo diaforetikh gwnia, se sugkrish me alloys. To "Fainomeno twn Delfwn" fainetai na exei isxuei akribws ejaitias ayths ths poikilias. Sto plaisio ths katarghshs twn bugs h poikilia ayth teinei epishs na meiwsei ton diplasiasmo ths prospa8eias.

Etsi, h pros8hkh perissoterwn dokimastwn isws den meiwnei thn polyplokothta toy duskoloy bug, apo thn skopia toy *programmatisth*, ayjanei omws thn pi8anothta oti ta ergaleia kapoioy programmatisth 8a tairiajoyn me to problhma me tetoio tropo wste to bug na ka8istatai epipolaio *gi' ayto to proswpo.*

O Linus, omws, fylaei kai ta rouxa toy. Se periptwsh poy *yparxoyn* sobara bugs, h ekdosh toy pyrhna ari8meitai me tetoio tropo wste oi xrhstes na einai se 8esh na epilejoyn eite thn egkatastash ths teleytaias "sta8erhs" ekdoshs h na riskaroyn me bugs gia na apolausoyn nea xarakthristika. Ayth h taktikh den briskei mimhtes anamesa stoys hackers toy Linux, alla isws 8a eprepe. To gegonos oti kai oi duo epiloges einai sthn dia8esh twn xrhstwn tis kanei elkystikes._

5 Pote Ena Triantafyllo den Einai Triantafyllo?

Exontas melethsei thn symperifora toy Linus kai sxhmatisei mia 8ewreia gia ton logo poy htan epityxhs, phra thn sobarh apofash na dokimasw thn 8ewreia moy sto neo moy sxedio (polu ligotero periploko kai filodojo).

Alla to prwto pragma poy ekana htan na organwsw ek neoy kai na aplopoihsw polu ton popclient. H ylopoihsh toy Carl Harris htan polu hxhrh alla paroysiaze mia mh anagkaia polyplokothta, koinh se pollous programmatistes C. Metaxeiristhke ton kwdika san na einai to kentro kai tis domes dedomenwn san yposthrijh toy kwdika. Me apotelesma o kwdikas na einai omorfos alla oi domes dedomenwn sxediasmenes ad hoc kai mallon asxhmes (toylaxiston sumfwna me ta ychla stantar aytou toy paliou LISP hacker).

Eixa ki ena allo epipleon skopo ektos ths beltiwshs toy kwdika kai ton sxediasmo ths domhs twn dedomenwn thn epaneggrafh toy kwdika ths efarmoghs. Aytos htan gia na emplakw se kati poy katalabaina plhrws. Den einai diaskedastiko na exeis thn ey8unh gia dior8wsh twn bugs s' ena programma poy den katalabaineis.

Ton prwto mhna akoloy8ousa thn ylopoihsh toy basikou sxediasmou toy Carl. H prwth sobarh allagh poy ekana htan na eisagw yposthrijh IMAR. Ayto to ekana me thn ek neoy organwsh twn prwtokollwn s' enan geniko driver kai se treis pinakes me8odwn (gia ROR2, ROR3 kai IMAR). Ayth kai h prohgoumenh allagh apeikonizoyn mia genikh arxh poy einai kalo na exoyn kata noy oi programmatistes, idiaitera se glwsses opws h C poy kanonika den dia8etoyn dynamikh daktylografhsh.

9. Ejypnh domh dedomenwn kai koytos kwdikas doyleuoyn kalutera ap' to antistrofo.

Brooks, Kefalaio 9: "An moy deijeis ton kwdika soy kai kruceis thn domh twn dedomenwn soy, 8a parameinw se sugxysh. An moy deijeis thn domh twn dedomenwn soy, den 8a xreiastw ton kwdika soy. Suntoma 8a ton ma8w".

Sthn pragmatikothta o Brooks, sthn parapanw paragrafo, anaferetai se "diagrammata rohs" kai "pinakes". Xrhsimopoiwntas, omws, trianta xronwn orologikhs /politistikhs metallaghs, einai sxedon to idio.

S' ayto to shmeio (arxes Septembrh 96, eji mhnes apo thn wra mhden) arxisa na skeftomai oti mia allagh onomatos isws einai epi8ymhth-sto katw ths grafhs, den htan pia apla enas POP client. Distasa, omws, epeidh tipota ston sxediasmo den htan gnhsia kainourio. H ekdosh toy popclient moy eprepe na apokthsei dikh ths taytothta.

Ayth h katastash allaje rizika otan to fetchmail ema8e pws na prow8ei ta paralhf8enta mhnumata sthn 8ura SMTP. 8a milhsw gi' ayto se ligo. Eipa prohgoymenws oti eixa apofasisei na xrhsimopoihsw ayto to sxedio gia na dokimasw thn 8ewria moy sxetika me thn symbolh toy Linus Torvalds. Ayto to ekana ws ejhs:

1. Ejedida nwris kai syxna (Toylaxiston mia fora stis deka meres. Sth diarkeia periodwn entonoy programmatismou, ka8e mera).

2. Megalwsa thn lista twn dokimastwn beta pros8etontas s' ayth ka8e enan poy epikoinwnouse mazi moy gia to fetchmail.

3. Estelna filikes anakoinwseis sta melh ths listas meta apo ka8e ekdosh, en8arrunontas ton kosmo na parei meros sto egxeirhma.

4. akoyga toys dokimastes moy, sfygmometrwntas anamesa toys gia tis apofaseis toy sxediasmou, eyxaristwntas toys ka8e fora poy apantousan ki estelnan dior8wseis.

To apotelesma aytwn twn aplwn metrwn htan ameso. Ap' thn arxh toy sxedioy elambana anafores gia bugs, tis opoies oi perissoteroi programmatistes 8a edinan ta panta gia na exoyn, syxna me proskollhmena kales dior8wseis. Lambana syllogismenh kritikh, diaskedastika mhnumata, ejypnes protaseis. Ol' ayta odhghsan sto:

10. An feresai stoys dokimastes soy san na einai h pio polutimh phgh soy, 8a antapokri8oun san h pio polutimh phgh soy.

Ena metro ths epityxias toy fetchmail einai to spoydaio mege8os ths listas twn dokimastwn, twn filwn toy fetchmail. Mexri stigmhs exei 249 melh kai prosti8entai duo h treis ka8e bdomada.

Opws diapistwsa sta telh Maioy 1997, h lista arxise na xanei apo ta peripoy 300 melh ths, poy einai kai o megaluteros ari8mos toys, gia enan shmantiko logo. Polloi an8rwpoi moy zhthsan na toys diagracw apo thn lista epeidh to fetchmail douleye toso kala gi' aytous poy den xreiazontan pleon na einai sth lista! Isws, kati tetoio einai meros toy fysikou kukloy zwhs ka8e wrimoy sxedioy poy yio8etei to styl "pazariou".

6 O Popclient Ginetai Fetchmail.

To pragmatiko shmeio kamphs toy sxedioy htan otan o Harry Hochheiser moy esteile to prosxedio toy kwdika toy gia prow8hsh taxydromeio sthn 8ura SMTP toy ypologisth poy 8a filojenouse ton client. Sxedon amesws katalaba oti mia swsth ylopoihsh aytou toy xarakthristikou 8a ka8istouse ka8e allh me8odo paradoshs taxydromeioy aparxaiwmenh.

Gia polles ebdomades emba8yna sto fetchmail olo kai pio polu kai, taytoxrona, eniw8a oti to interface antexe sthn xrhsh alla htan aperipoihto, akomco kai me para polla mikra options edw ki ekei. H epilogh dioxeteyshs toy taxydromeioy poy eixe hdh paralhf8ei sto arxeio mailbox h sthn stantar ejodo me enoxlouse, alla den katalabaina giati.

Ayto poy eida, otan skefthka thn prow8hsh mhnymatwn mesw SMTP, htan oti o popclient prospa8ouse na kanei para polla pragmata. Eixe sxediastei na einai ena programma metaforas taxydromeioy (MTA) ki ena programma topikhs dianomhs taxydromeioy (MDA). Me thn prow8hsh SMTP 8a mporouse na apallagei ap' thn leitoyrgia MDA kai na einai ena aplo MTA, metaferontas ta mhnumata se alla programmata, gia topikh paralabh, opws akribws to sendmail.

Giati na periplekw ta pragmata ry8mizontas ena programma dianomhs taxydromeioy h na efarmozw thn leitoyrgia lock-and-append s' ena mailbox, th stigmh poy h 8ura 25 eggyhmena yparxei se ka8e platforma me yposthrijh TCP/IP ap' thn arxh; Idiaitera otan ayto shmainei oti, h allhlografia poy paralambanetai moiazei sigoyra me ena kanoniko taxydromeio SMTP poy energopoieitai ap' ton apostolea, pragma to opoio einai ayto poy zhtame.

Ta ma8hmata edw einai polla. Prwton, ayth h idea prow8hshs mesw SMTP htan to shmantikotero poy kerdisa ap' thn syneidhth prospa8eia moy na ejomoiwsw tis me8odoys toy Linus. Enas xrhsths moy edwse ayth thn polu kalh idea-ayto poy eprepe na kanw htan na katalabw tis epiplokes.

11. To pio spoydaio meta apo to na exeis kales idees, einai na anagnwrizeis tis kales idees twn xrhstwn soy. Merikes fores to teleytaio einai kalutero.

Suntoma 8a katalabeis oti, an eisai entelws eilikrinhs gia to posa xrwstas stoys alloys kai kaneis aytokritikh, o kosmos 8a soy symperiferetai san na einai dikh soy h epinohsh kai 8a einai metriofrones gia thn emfyth eyfyia soy. Oloi mporoume na doume poso kala ayto leitourghse gia ton Linus!

(Otan edwsa ayto to keimeno se ena synedrio me 8ema thn Perl ton Augoysto toy 1997, O Larry Wall ka8ontan sthn prwth grammh. Epeidh egw ka8omoyn sthn teleytaia seira moy fwnaje, me styl 8rhskeytikhs anazwpurwshs [religious-revival style], "Pesta, pesta, aderfe!". Olo to akroathrio gelase , epeidh hjeran oti oi apoceis moy eixan doylecei kai gia ton dhmioyrgo ths Perl.)

Meta apo liges ebdomades doyleuontas sto sxedio me to idio pneuma arxisa na pairnw paromoioys epainoys oxi mono apo toys xrhstes moy, alla ki apo alloys an8rwpoys poy ema8an ol' ayta. Fulaja san 8hsayro kapoia apo ayta ta Email, merikes fores ta janakoitaw otan arxizw na anarwtiemai an h zwmou ajizei ton kopo :-)

Omws, edw yparxoyn alla duo 8emeliwdh mh politika ma8hmata, poy efarmozontai se ka8e eidos sxediasmou.

12. Syxna, oi pio faneres kai kainotomikes luseis emfanizontai otan blepeis oti h antilhch poy exeis gia to problhma einai la8os.

Prospa8ousa na lusw la8os problhma me to na synexizw na anaptussw ton popclient san ena syndyasmo MTA/MDA, me ola ta eidh me8odwn topikhs dianomhs taxydromeioy. Eprepe na skeftw pali to fetchmail ap' thn arxh, san ena ka8aro MTA, san meros toy kanonikou SMTP Internet taxydromeioy.

Otan ftaneis se adiejodo-otan nomizeis oti dyskoleuesai na skefteis to epomeno patch-syxna einai kairos na skefteis oxi an exeis thn swsth apanthsh, alla an rwtas thn swsth erwthsh. Isws prepei na to problhma na diey8eth8ei ek neoy.

Ayto ki ekana. 3eka8ara, ayto poy eprepe na kanw htan (1) na eisagw yposthrijh prow8hshs SMTP ston geniko driver, (2) na thn ry8misw ws ej orismou leitoyrgia kai, (3) na apallagw apo oles tis alles leitoyrgies dianomhs, idiaitera thn apo8hkeysh twn mhnymatwn se arxeio kai thn metabibash sthn stantar ejodo.

Ka8ysterhsa gia ligo sto stadio (3), foboumenos na anastatwsw toys xrhstes poy xrhsimopoiousan gia megalo diasthma popclient kai hsan ejarthmenoi ap' toys enallaktikous mhxanismous paralabhs. 8ewrhtika, 8a mporousan na metabainoyn sta arxeia .forward h sta non-sendmail isodunama toys, kai na exoyn to idio apotelesma. Sthn prajh, h metabash ayth fainotan akatastath.

Otan, omws, ta katafera to kerdos apodeixthke megalo. Ta dyskolotera merh toy driver ejafanisthkan. H ru8mish egine rizika aplousterh-terma h anazhthsh gia to MDA toy systhmatos kai to mailbox toy xrhsth, telos stis anhsyxies gia to ean to leitoyrgiko programma yposthrizei kleidwma twn arxeiwn [file locking].

Epishs, o monos tropos na xaseis mhnumata ejafanisthke. An exeis orisei h paralabh twn mhnymatwn na proskollh8ei s' ena arxeio ki o diskos einai gematos, ta mhnumata soy xanontan. Ayto den symbainei me thn prow8hsh mesw SMTP, epeidh o SMTP listener den 8a epistrecei OK mexris otoy ta mhnumata paralhf8oun h, toylaxiston, mpoyn sthn seira gia paradosh kapoia allh stigmh.

Akomh, beltiw8hke h apodosh (an kai den 8a to prosejei kaneis me mia aplh xrhsh toy programmatos). Ena allo oxi ashmanto ofelos ayths ths allaghs htan oti to egxeiridio xrhshs egine aploustero.

Argotera, eprepe na ry8misw thn paralabh twn mhnymatwn mesw enos topikou MDA ka8orismeno apo ton xrhsth, wste na epitrecw ton elegxo kapoiwn skoteinwn katastasewn sxetika me thn dynamic SLIP. Brhka, omws, enan pio aplo tropo gia na to kanw.

H8iko didagma; Mhn distazeis na petajeis parwxhmena xarakthristika otan mporeis na to kaneis xwris apwleies sthn apotelesmatikothta. O Antoyan Saint-Ejperu (poy htan pilotos kai sxediasths aeroskafwn, otan den egrafe klasika biblia gia paidia) exei pei:

13. H teleiothta (ston sxediasmo) einai dynath oxi otan den yparxei kati gia na pros8eseis, alla mallon otan den yparxei kati gia na afaireseis.

Otan o kwdikas soy ginetai kaluteros kai aplousteros, tote *jereis* oti einai swstos. Kai sthn poreia to fetchmail apekthse dikh toy taytothta, diaforetikh ap' ton progono toy popclient.

Htan wra gia thn allagh toy onomatos. To neo programma emoiaze perissotero m' ena diplo sendmail poy die8ete o palios poclient. Kai ta duo einai MTA, alla ekei poy to sendmail sprwxnei thn paradosh toy taxydromeioy, o neos popclient thn elkuei. Etsi, meta apo duo mhnes leitoyrgias xwris empodia, ton onomasa fetchmail.

7 To Fetchmail Enhlikiwnetai.

Na mia, loipon, m' ena kaloftiagmeno kai neo sxediasmo, m' enan kwdika poy hjera oti epejergasthka kala epeidh ton xrhsimopoiousa ka8e mera, kai mia lista dokimastwn poy megalwne. Ba8miaia arxisa na katalabainw oti den ekana pleon kapoion tetrimmeno proswpiko programmatismo poy isws na htan xrhsimos gia merikous an8rwpoys. Eixa sta xeria moy ena programma poy ka8e hacker me Unix kai sundesh SLIP/PPP xreiazotan st' alh8eia.

Me to xarakthristiko ths prow8hshs mesw SMTP, to programma mphke prwto ston synagwnismo ki egine o "fonias" ths kathgorias toy, egine ena klasiko programma poy gemizei toso kala thn gwnia poy katalambanei wste ta enallaktika pros ayto programmata oxi aporrif8hkan alla sxedon jexasthkan.

Einai duskolo na exeis tetoia apotelesmata. Prepei na sprwxteis s' ayta me to na sxediazeis nees idees toso isxyres wste, sto telos, ta apotelesmata na fainontai anapofeykta, fysika. O monos tropos gia na exeis tetoies idees einai na exeis polles idees-h na exeis thn sxediastikh krish na odhgeis tis kales idees allwn an8rwpwn pera ap' to shmeio poy oi empneystes toys 8a mporousan na to odhghsoyn.

O Andrew Tanenbaum eixe thn arxikh idea na dhmioyrghsei ena aplo topiko susthma Unix gia 386, gia na to xrhsimopoihsei san didaktiko ergaleio. O Linus Torvalds w8hse thn idea toy Minix pio pera ap' ton Andrew. Me ton idio tropo (an kai se mikroterh klimaka) phra merikes idees twn Carl Harris kai Harry Hochheiser kai tis w8hsa sta akra. Kaneis mas den htan "gnhsia" idiofyia.

Ta apotelesmata hsan me8ystika-htan akribws h epityxia poy ka8e programmatisths latreuei! H epityxia ayth shmaine oti eprepe na 8esw ta stantar moy chlotera. Gia na kanw to fetchmail oso kalo eblepa oti mporei na ginei, eprepe na to kataskeyasw oxi mono gia tis dikes moy anagkes, alla epishs na symperilabw kai na yposthrijw xarakthristika xrhsima gia alloys, ejw omws apo thn dikh moy troxia. Ki ayto na to kanw diathrwntas to programma aplo kai gero.

To prwto kai polu shmantiko xarakthristiko, poy symperielaba meta ap' ol' ayta, htan h yposthrijh multidrop-h dynatothta paralabhs toy taxydromeioy apo ta mailboxes poy exoyn sysswreusei ola ta mhnumata mias omadas xrhstwn kai h dromologhsh toy ka8e mhnumatos ston paralhpth toy.

Apofasisa na kanw merikh pros8hkh yposthrijhs multidrop epeidh merikoi xrhstes diamarturontan, alla kyriws epeidh nomiza oti 8a jeka8arize ta elattwmata toy kwdika single-drop anagkazontas me na asxolh8w ejoloklhroy me thn diadikasia diey8ynsiodothshs / kataxwrhshs. Ki etsi apodeix8hke. Phra to *RFC 822* `<http://www.internic.net/rfc/rfc822.txt>` kai h eisagwgh ayths ths parametroy sthn yporoytina me ka8ysterhse arketo xrono, oxi epeidh ta jexwrista kommatia ths einai duskola, alla epeidh enepleke ena swro apo allhloejartwmenes kai idiotropes leptomereies.

Omws, h diey8ynsiodothsh multidrop katelhje na ginei mia polu kalh sxediastikh apofash.

14. Ka8e ergaleio 8a prepei na einai xrhsimo me ka8e anamenomeno tropo, alla ena pragmatika spoydaio ergaleio prosferetai gia xrhseis poy pote den 8a perimenes.

H anapantexh xrhsh toy multidrop fetchmail einai h dynatothta leitoyrgias mias listas allhlografias (mailing lists) poy diathreite sthn pleyra toy *client* ths sundeshs SLIP/PPP, kai taytoxrona s' ayth exei ginei h epektash toy alias. Ayto shmainei oti, kapoios poy xrhsimopoiei enan proswpiko ypologisth, mesw enos logariasmou se kapoion ISP, mporei na xeiristei thn lista allhlografias xwris na diathrei synexws thn prosbash toy sta arxeia ceydwnumwn toy ISP.

Mia allh endiaferoysa allagh poy apaithsan oi dokimastes htan h yposthrijh leitoyrgias 8-bit MIME. Ayto htan eukolo na to kanw, epeidh eixa prosejei na diathrhsw ton 8-bit kwdika ka8aro. Oxi epeidh proebleca thn apaithsh gi' ayto to xarakthristiko, alla mallon ypakouontas se enan allo kanona:

15. Otan kataskeyazeis gateway logismiko opoioydhpote eidoys, prospa8hse na alloiwseis to stream twn dedomenwn oso to dynaton ligotero-kai POTE mhn petas plhrofories an oi paralhptes soy den se anagkasoyn!

An den ypakoya s' ayto ton kanona h yposthrijh 8-bit MIME 8a htan duskolh kai gemath bugs. Opws htan twra, ayto poy eprepe na kanw htan na diabasw to *RFC 1652* `<http://www.internic.net/rfc/rfc1652.txt>` kai na pros8esw tetrimmena bits gia dhmioyrgia kefalidwn.

$Merikoi Eyrwpaioi xrhstes moy zhtousan na pros8esw mia epilogh periorismou toy ari8mou twn mhnymatwn poy paralabainan se ka8e xrhsh toy fetchmail (wste na elegxoyn ta ejodo sundeshs toys sta akriba thlefwnika diktya). Antista8hka s' ayth thn apaithsh gia arketo kairo, kai den mporw na pw oti eimai xaroumenos gi' ayto. Alla otan grafeis gia ton kosmo prepei n' akous toys pelates soy-ayto den allazei epeidh den se plhrwnoyn me xrhmata.

8 Merika Akomh Ma8hmata apo to Fetchmail.

Prin epistrecoyme se 8emata genikou endiaferontos paragwghs logismikou, yparxoyn akomh merika ma8hmata ap' thn empeiria toy fetchmail gia na melethsoyme.

H suntajh twn arxeiwn rc perilambanei proairetikes desmeymenes lejeis "8oruboy" [noise keyword] poy agnoountai plhrws apo ton programmatisth. H suntajh Agglikou tupoy poy protimoun einai polu pio anagnwsimh ap' ta paradosiaka lita zeugh timwn desmeymenwn lejewn poy pairnei kaneis otan apogymnwsei aytes tis desmeymenes lejeis.

Ayto arxise san ena peirama, otan proseja poso polu oi anakoinwseis twn arxeiwn rc arxizan na moiazoyn mia epibeblhmenh mikrh glwssa. (Aytos einai o logos poy allaja thn arxikh desmeymenh lejh toy popclient apo "server" se "poll").

Moy fainotan oti an prospa8ousa na kanw ayth thn epibeblhmenh mikrh glwssa na moiazei me ta Agglika 8a ginotan pio euxrhsth. Omws, an kai eimai afosiwmenos opados ths sxolhs sxediasmou poy apokaleite "kaneto mia glwssa", opws mas paradeigmatizoyn to Emacs h HTML kai polles mhxanes basewn dedomenwn, den eimai spoydaios opados ths suntajhs Agglikou tupoy.

Oi paradosiakoi programmatistes eteinan na eynooun suntajh elegxoy poy einai polu akribhs kai sympaghs kai den eixan ka8oloy perittes epanalhceis. Ayto einai mia politismikh klhronomia apo thn epoxh poy oi poroi twn ypologistwn hsan akriboi, wste h analysh twn stadiwn na einai oso to dynaton pio fthnh ki aplh. Ta Agglika, me peripoy 50% perittwn epanalhcewn, fainotan tote polu akatallhlo montelo.

Den einai aytos o logos poy apofeugw thn suntajh Agglikou tupoy. Thn anaferw edw mono gia na thn katarghsw. Exontas fthnous kukloys kai pyrhna h lakwnikothta den 8a eprepe na einai aytoskopos. Shmera, einai pio shmantiko h glwssa na einai bolikh gia toys an8rwpoys apo to na einai fthnh gia toys ypologistes.

Yparxoyn, omws, sobaroi logoi na anhsyxoume. Enas, einai to kostos poy dhmioyrgei h periplokh twn analymenwn stadiwn-kaneis den 8elei na ayjhsei ayth thn periplokh sto shmeio na einai phgh bugs kai sugxyshs twn xrhstwn. Enas allos einai oti, prospa8wntas na kanoyme mia glwssa suntajhs na moiazei me Agglika syxna apaiteitai ta "Agglika" poy mila ayth na jefeugoyn arketa apo ka8e gnwsth morfh, toso wste h epifaneiakh omoiothta pros thn fysikh glwssa na einai toso sygxytikh oso mporei na einai ka8e paradosiakh suntajh. (Ayto to synanta kaneis se polles emporikes glwsses poy efarmozoyn anazhthsh mesw basewn dedomenwn kai tis legomenes glwsses "tetarths genias".

H suntajh elegxoy toy fetchmail fainetai na apofeugei ayta ta problhmata, epeidh o xwros kyriarxias ths glwssas toy einai polu periorismenos. Den einai mia genikh glwssa. Ta pragmata poy leei ayth den einai toso periplegmena, wste yparxei mikrh pi8anothta sugxyshs otan kinoumaste metaju enos mikrou yposynoloy ths Agglikhs kai ths pragmatikhs glwssas elegxoy. Edw yparxoyn eyrutera didagmata:

16. Otan mia glwssa den einai plhrhs kata Turing (Turing-complete), tote h kaluterh lush einai h syntaktikh zaxarh.

Ena allo ma8hma einai gia thn asafeia ths asfaleias. Merikoi xrhstes toy fetchmail moy zhthsan na kanw allages sto programma wste na apo8hkeuei kryptografhmenoys kwdikous sto arxeio rc, wste na mhn mporoun na toys doyn tyxaia oi adiakritoi.

Den to ekana, epeidh kati tetoio den prosferei asfaleia. Opoiosdhpote exei adeia na diabasei to arxeio rc 8a mporei na xrhsimopoihsei to fetchmail-ki an caxnoyn ton kwdika sas 8a mporoun na apomonwsoyn ton apokwdikopoihth mesa apo ton idio ton kwdika toy fetchmail.

Opoia kryptografhsh kwdika sto arxeio .fetchmailrc ki an epixeirh8ei dinei mia esfalmenh ais8hsh asfaleias. O genikos kanonas einai o ejhs:

17. Ena susthma asfaleias einai toso asfales oso einai kai to mystiko toy. Prosoxh sta ceydo-mystika.

9 Proupo8eseis gia to Styl Pazariou.

Oi prwtoi anagnwstes aytou toy keimenoy e8etan erwthseis gia tis proupo8eseis gia enan epityxhmeno programmatismo se styl pazariou, symperilambanomenwn toso twn prosontwn toy epikefalh toy egxeirhmatos, oso kai thn katastash toy kwdika kata th stigmh poy kapoios, dhmosia, jekina thn prospa8eia organwshs mias omadas syn-programmatistwn.

Einai jeka8aro oti kaneis den mporei, me to pazariwtiko styl, na dhmioyrghsei kwdika ek toy mhdenos sto Pazariwtiko styl. Mporei kaneis na dokimasei, na beltiwsei kai na kanei debug kapoioy kwdika, alla 8a htan polu duskolo na *dhmioyrghsei* ek neoy ena project m' ayth th me8odo. Oute egw oute ki o Linus to dokimasame. H omada programmatismou poy molis dhmioyrghsate exei anagkh kati poy einai xrhsimopoihsimo kai dokimasmeno, gia na jekinhsei.

Otan jekina kaneis thn dhmioyrgia ths omadas programmatismou prepei na mporeite na *paroysiasete alh8ofaneis yposxeseis*. To programma sas den xreiazetai na doyleuei idiaitera kala. Mporei na einai argo, olo bugs, ateles kai ftwxa tekmhriwmeno. Ekei poy den prepei na apotuxete einai na peisete toys pi8anous syn-programmatistes sas oti mporei na ejelix8ei se kati petyxhmeno mesa sto problepto mellon.

To Linux kai to fetchmail dhmosiopoih8hkan exontas stibaro, elkystiko sxediasmo. Polloi an8rwpoi poy skeftontai me to montelo toy pazariou opws thn paroysiasa, exoyn labei sobara ypoch ayto to krisimo shmeio kai katelhjan sto symperasma oti einai apolyta anagkaio o epikefalhs toy sxedioy na dia8etei sxediastikh diais8hsh ki eyfyia.

$Alla o Linus phre ta sxedia toy apo to Unix. Egw phra ta dika moy arxika ap' to popclient (an kai argotera 8a allaze para polu kai perissotero analogika me to Linux). Prepei, loipon, o epikefalhs, syntonisths mias prospa8eias pazariwtikoy styl na exei ejairetiko sxediastiko talento, h mporei na proxwrhsei enisxuontas to sxediastiko talento allwn;

Den nomizw oti einai shmantiko o syntonisths na mporei na dhmioyrgei sxedia ejairetikhs eyfyias, alla einai apolyta shmantiko na mporei na *anagnwrisei tis kales sxediastikes idees allwn.*

Ayto to apedeijan ta project toy Linux kai toy fetchmail. O Linus, enw den htan (opws eipame kai prin) enas gnhsios sxediasths, epedeije dejiothta sto na anagnwrizei ta kala sxedia kai na ta oloklhrwnei ston pyrhna toy Linux. Ki exw hdh perigracei pws h pio isxyrh sxediastikh idea gia to fetchmail (dhladh, h prow8hsh mesw SMTP) prohl8e apo kapoion allo.

Oi prwtoi anagnwstes aytou toy keimenoy me kolakeuoyn ypainissomenoi oti exw prodia8esh na ypoektimw thn sxediastikh gnhsiothta sxediwn pazariwtikoy styl, epeidh dia8etw o idios arketh apo ayth kai, etsi, thn 8ewrw dedomenh. Isws ayto na alh8euei. O sxediasmos einai sigoyra h kaluterh ikanothta moy.

To problhma, omws, otan kaneis einai eyfyhs ston sxediasmo logismikou einai otan kati tetoio arxizei na ginetai synh8eia-arxizeis na kaneis pragmata periploka otan 8a eprepe na einai dynata kai apla. Polla programmata katerreysan epeidh ekana ayto to la8os, alla to apefyga sto fetchmail.

Pisteuw, loipon, oti to project toy fetchmail petyxe en merei epeidh empodisa thn tash moy na eimai ejypnos. Kati tetoio erxetai se anti8esh me thn sxediastikh gnhsiothta poy einai oysiwdhs gia ena epityxhmeno pazariwtiko project. Ypo8este oti o Linus prospa8ouse na petuxei 8emeliwdhs kainotomies kata th diarkeia toy programmatismou. Fainetai api8ano oti o pyrhnas poy 8a epairne m' ayto ton tropo na htan sta8eros kai petyxhmenos ;

Ena sygkekrimeno epipedo sxediastikhs kai programmatistikhs ikanothtas einai aparaithto, bebaia, alla anamenw oti oloi osoi skeftontai sobara na asxolh8oun me thn me8odo pazariou na einai hdh panw ap' ayto to minimoym. H eswterikh agora ths koinothtas anoixtou kwdika askei leptes pieseis stoys an8rwpoys na mhn askoun programmatistikes prospa8eies tis opoies den mporoun na akoloy8hsoyn ws to telos. Ws twra ayth h symboylh eisakouetai.

Yparxei ki ena allo eidos ikanothtas poy kanonika den syndeetai me thn anaptyjh logismikou h opoia, nomizw, einai toso shmantikh gia to pazariwtiko project oso kai h sxediastikh eyfyia-kai isws perissotero. Enas syntonisths xalarou sxedioy prepei na exei kalous synergates kai ikanothtes epikoinwnias.

Gia na organwseis mia omada programmatistwn prepei na eljeis toys an8rwpoys, na prokaleseis to endiaferon toys se o,ti kaneis kai na toys prokaleis thn eyxaristhsh gia thn posothta ergasias poy kanoyn. Ta texnika skampanebasmata 8a einai polla mexris otoy na to kataferete, alla den einai ayto to 8ema mas. H proswpikothta poy probalete exei shmasia.

Den einai sumptwsh poy o Linus einai kalo atomo kai kanei toys an8rwpoys na 8eloyn na ton boh8hsoyn. Den einai tyxaio poy eimai enas energhtikos ejwstrefhs tupos poy toy aresei na doyleuei me alloys. Gia na exei apotelesmata to pazariwtiko montelo, boh8aei an mporeis na synergasteis me eyxaristoys an8rwpoys.

10 To Koinwniko Plaisio toy Logismikou Anoixtou Kwdika.

Ayto poy lene einai swsto: oi kaluteres parembaseis sto logismiko [hacks] jekinoun san proswpikes luseis sta ka8hmerina problhmata toy programmatisth ki ejaplwnontai epeidh ayta ginontai typika gia megalo ari8mo xrhstwn. Ayto mas parapempei sto 8ema toy kanona (1), poy mporei na diatypw8ei me pio xrhsimo tropo:

18. Gia na luseis ena endiaferon problhma, bres ena problhma poy einai endiaferon gia sena.

Ayto synebh me ton Carl Harris kai to palio popclient, ayto synebh kai me mena kai to fetchmail. Alla ayto hdh to exoyme katalabei. To endiaferon shmeio, to shmeio sto opoio oi istories toy Linux kai toy fetchmail fainetai na apaitoun na estiasoyme epanw toys, einai to epomeno stadio-h ejelijh toy logismikou paroysia mias megalhs kai drasthrias koinothtas xrhstwn kai syn-programmatistwn.

Sto biblio toy "The Mythical Man-Month" o Fred Brooks parathrei oti, o xronos toy programmatisth den einai antallajimos. H pros8hkh programmatistwn s' ena ka8ysterhmeno project logismikou to ka8ysterei perissotero. Isxyrizetai oti, to kostos ths polyplokothtas kai ths epikoinwnias enos project ayjanontai gewmetrika, enw h ergasia poy oloklhrwnetai ayjanetai ari8mhtika. Ayth h apoch egine gnwsth san "o Nomos toy Brooks" kai anagnwrizetai apo pollous san kati teleiws pasifanes. Alla an o Nomos toy Brooks apedide thn olh eikona to Linux 8a htan adunato na yparjei.

To klasiko keimeno "H Yyxologia toy Programmatismou me Hlektroniko Ypologisth", toy Gerald Weinberg, mas dinei mia zwtikh dior8wsh ths apochs toy Brooks. Sthn syzhthsh toy gia ton "xwris egwismo" programmatismo o Weinberg parathrei oti, se ergasies poy programmatistes den apaitoun "edafika dikaiwmata" gia ton kwdika toys kai en8arrunoyn alloys an8rwpoys na anazhthsoyn bugs kai pi8anes beltiwseis, h beltiwsh symbainei dramatika grhgorotera apo opoydhpote allou.

Oi epiloges orologias poy ekane o Weinberg isws empodizoyn thn analysh toy na kerdisei thn apodoxh poy ths ajizei-kapoios 8a xamogelouse ston xarakthrismo twn hackers toy Internet san "xwris egwismo". Alla pisteuw oti oi isxyrismoi toy moiazoyn shmera perissotero epiblhtikoi apo pote.

H istoria toy Unix 8a eprepe na mas exei proetoimasei gia o,ti ma8ainoyme ap' to Linux (kai gia oti exw egw diapistwsei, peiramatika kai se mikroterh klimaka otan skopima antegraca tis me8odoys toy Linus). Oti, dhladh, enw h suntajh kwdika paramenei mia oysiwdws monaxikh drasthriothta, oi pragmatika kales programmatistikes ergasies proerxontai otan xrhsimopoieitai h prosoxh kai h dianohtikh dunamh ths omadas.

O programmatisths poy xrhsimopoiei to myalo toy toy monos h monh s' ena kleisto project 8a meinei pisw ap' ton programmatisth poy jerei pws na dhmioyrghsei ena anoixto, ejeliktiko plaisio sto opoio o entopismos twn bugs kai h epiteyjh beltiwsewn kataferontai apo ekatontades an8rwpwn.

Omws, o paradosiakos kosmos toy Unix empodisthke sthn prospa8eia toy na w8hsei ayth thn proseggish sthn telikh ths fash apo pollous paragontes. Tetoioi htan oi nomikoi periorismoi diaforwn adeiwn xrhshs pneymatikwn dikaiwmatwn, epaggelmatika mystika kai ta emporika symferonta. Enas allos htan oti to Internet den htan akomh arketa kalo.

Prin apo thn eleysh toy fthnou Internet yphrxan kapoies gewgrafika sympageis omades twn opoiwn h koyltoura ene8arryne ton "mh egwistiko" programmatismo toy Weinberg ki enas programmatisths mporouse xwris dyskolia na proselkusei pollous ikanous parathrhtes kai programmatistes. Ta Bell Labs, MIT AI Lab, to UC Berkeley eginan oikoi 8rylikwn kainotomiwn poy einai akomh se isxu.

To Linux htan to prwto project poy ekane syneidhtes kai epityxeis prospa8eies na ajiopoih8ei oloklhros o *kosmos* san h dikh toy dejamenh talentwn. Den nomizw oti einai sumptwsh oti h gonimh periodos toy Linux emfanizetai thn idia periodo me ekeinh ths gennhshs toy Pagkosmioy Istou (World Wide Web-WWW) kai oti to Linux egkateleice thn paidikh toy hlikia kata thn periodo 1993-1994 h opoia eide thn apogeiwsh ths biomhxanias Paroxewn Yphresiwn Internet (ISP) kai ths ekrhjhs toy megaloy reumatos endiaferontos gia to Internet. O Linus htan o prwtos an8rwpos poy ema8e pws na paizei me toys neoys kanones poy dhmioyrgouse to Internet.

Enw to fthno Internet htan mia anagkaia syn8hkh gia thn anaptyjh toy monteloy Linux, nomizw pws apo mono toy den hgan mia eparkhs syn8hkh. Enas allo zwtikos paragontas htan h anaptyjh enos hgetikou styl ki enos synoloy synergatikwn synh8eiwn poy epetrecan stoys programmatistes na proselkusoyn synprogrammatistes kai na apokomisoyn thn megisth isxu.

Ti einai, omws, ayto to hgetiko styl kai oi synh8eies; Den mporoun na basizontai se sxeseis ejoysias-akomh ki an mporousan, h ejanagkastikh ejoysia den mporei na prokalesei ta apotelesmata poy diapistwnoyme. O Weinberg para8etei thn aytobiografia toy Piotr Alejeiebits Kropotkin, Rwsoy anarxikou toy 19oy aiwna, "Oi anamnhseis enos Epanastath".

"Exontas anatrafei apo mia oikogeneia poy eixe sthn idiokthsia ths doyloparoikoys jekinhsa thn zwh moy, opws oloi oi neoi ths epoxhs moy, me pisth megalh sthn anagkaiothta toy na diatazeis, na malwneis, na timwreis, kai ol' ayta. Alla otan, arketa nwris, eprepe na leitoyrghsw sobares epixeirhseis kai na sysxetistw me [eleu8eroys] an8rwpoys, kai otan to paramikro la8os mporouse na odhghsei se odynhres epiptwseis, arxisa na ektimw thn diafora metaju ths drashs basei twn arxwn ths entolhs kai ths pei8arxias kai ths drashs basei ths arxhs ths koinhs katanohshs. Oi prwtes efarmozontai 8aymasia se mia stratiwtikh parelash, alla den ajizei to paramikro sthn pragmatikh zwh opoy o stoxos mporei na epiteyx8ei mono me tis sklhrh prospa8eia pollwn sygklinoyswn 8elhsewn"

H "sklhrh prospa8eia pollwn sygklinoyswn 8elhsewn" einai akribws ayto poy apaitei to project toy Linux-kai h "arxh ths diataghs" einai adunaton na efarmostei metaju e8elontwn, mesa ston anarxiko paradeiso poy legetai Internet. Gia na leitoyrghsoyn kai synagwnistoun apotelesmatika, oi programmatistes poy 8eloyn na hgh8oun enos synergatikou project prepei na ma8oyn na stratologoun kai na energopoioun apotelesmatikes omades programmatistwn me ton tropo poy proteinei h "arxh ths katanohshs" toy Kropotkin. Prepei na ma8oyn na xrhsimopoioun ton Nomo toy Linus.

Nwritera anafer8hka sto "fainomeno twn Delfwn" ws mia pi8anh ejhghsh toy Nomoy toy Linus. Yparxoyn, omws, ki alles ejhghseis opws oi isxyres analogies twn prosarmosimwn systhmatwn sthn biologia kai thn oikonomia. O kosmos toy Linux symperiferetai apo polles apoceis san mia eleu8erh agora h ena oikosusthma, san ena sunolo egwistikwn dynamewn poy prospa8oun na megistopoihsoyn thn wfeleia h opoia, sthn diadikasia, dhmioyrgei mia ayto-dior8wtikh ay8ormhth tajh perissotero peritexnh kai apotelesmatikh apo ka8e tetoia poy mporei na kataferei opoiodhpote posothta kentrikou sxediasmou. Meta, s' ayto to shmeio prepei na anazhthsoyme thn "arxh ths katanohshs".

H ”wfelimh leitoyrgia” poy prospa8oun na megistopoihsoyn oi programmatistes Linux den einai oikonomikh alla mia aprosdioristh ikanopoihsh toy egw kai ths fhmhs toys metaju twn allwn programmatistwn. (Kapoios mporei na onomasei to kinhtro toys ”altroyistiko”, alla 8a agnoei oti o altroyismos einai o idios einai mia morfh ikanopoihshs toy egw twn altroyistwn). H e8elontikh koyltoura poy leitoyrgei m’ ayto ton tropo sthn pragmatikothta einai synh8ismenh. Mia allh koyltoura, sthn opoia symmeteixa ki egw, einai oi opadoi ths episthmonikhs fantasias poy, anti8eta me toys programmatistes anagnwrizei ”ton mpampoula toy egw” (ton employtismo ths fhmhs kapoioy metaju allwn opadwn) san to basiko kinhtro pisw ap’ thn e8elontikh drasthriothta.

Exontas me epityxia balei ton eayto toy sth 8esh toy fulaka toy project kata to opoio h anaptyjh toy logismikou ginetai apo alloys kai kalliergwntas to endiaferon gia to project mexris otoy ayto egine aytosynthroumeno, o Linus epedeije mia ojyderkh antilhch ths ”arxhs ths koinhs katanohshs” toy Kropotkin. Ayth h hmi-oikonomikh och toy kosmoy toy Linux mas anagkazei na ejetasoyme pws efarmozetai ayth h katanohsh.

Mporoume na doume tis me8odoys toy Linus san ena tropo sundeshs toy egwismou toy jexwristou programmatisth oso to dynaton pio stenhs me duskoloys stoxoys, poy mporoun na epiteyx8oun mono me paratetamenh synergasia. Me to project toy fetchmail apedeija (molonoti se mikroterh klimaka) oti ayth h me8odos mporei na epanalhf8ei me kala apotelesmata. Isws ta katafera ligo pio syneidhta kai systhmatika apo ekeinon.

Polloi an8rwpoi (idiaitera ekeinoi poy politika dyspistoun enwpion ths eleu8erhs agoras) 8a perimenan apo mia koyltoura ayto- diey8ynomenwn atomwn na einai kermatismenh, topikh, axrhsth, peritth ki ex8rikh. Aytes oi prosdokies, omws, akyrwnontai apo thn ekplhktikh poikilia, poiothta kai ba8os ths tekmhriwshs toy Linux, gia na anaferw ena paradeigma. Oi programmatistes *apex8anontai* thn tekmhriwsh. Pws, tote, oi programmatistes toy Linux paragoyn tosh polu; Profanws, h eleu8erh agora sto Linux doyleuei parexontas kalh, diaforetikh symperifora apo ekeinh twn mazika xrhmatodotoumenwn ergasthriwn paragwghs tekmhriwshs twn emporikwn logismikwn proiontwn.

Toso to project toy pyrhna toy fetchmail oso kai toy Linux deixnoyn oti, antameibontas katallhla toys programmatistes enas kalos programmatisths/syntonisths mporei na xrhsimopoihsei to Internet gia na ekmetalleytei ta ofelh otan exei pollous programmatistes xwris, taytoxrona, na katastrefetai to project mesa se mia xaotikh anakatwsoura. Etsi, ston Nomo Brooks antiproteinw to ejhs:

19. Me ton oro o syntonisths programmatisths na exei ena meson toylaxiston toso kalo oso to Internet kai gnwrizontas pws na hgh8ei xwris katapiesh, polla myala anapofeykta ginontai kalutera apo ena.

Pisteuw oti, to mellon toy *logismikou anoixtou kwdika* anhkei olo kai perissotero stoys an8rwpoys poy jeroyn pws na paijoyn to paixnidi toy Linus, se an8rwpoys poy afhnoyn pisw toys to ka8edriko styl ki agkaliazoyn to styl pazariou. M’ ayto den ennooume oti h apoch kai h eyfyia toy ka8enos den exoyn shmasia. Alla mallon oti, h aixmh toy logismikou anoixtou kwdika 8a anhkei se an8rwpoys poy jekinoun ap’ thn atomikh apoch ki eyfyia kai meta tis enisxuoyn me thn apotelesmatikh dhmioyrgia e8elontikwn omadwn koinou endiaferontos.

Kai isws oxi mono to mellon toy logismikou anoixtou kwdika. Kanenas programmatisths kleistou kwdika mporei na sygkentrwsei ola ayta ta talenta poy h koinothta toy Linux mporei na apasxolhsei gia thn epilysh kapoioy problhmatos. Polloi ligoi mporoun na antepejel8oyn sto oikonomiko ejodo proslhchs to polu diakosiwn an8rwpwn, oswn syneiseferan sto fetchmail!

Isws, sto telos, h koyltoura toy anoixtou kwdika 8riambeusei oxi epeidh h synergasia einai h8ikws or8h h h ”fragh” toy logismikou einai h8ikws lan8asmenh (ypo8etw oti 8a symfwneite me to teleytaio), alla apla epeidh o kosmos toy kleistou kwdika den mporei na kerdisei enan ejeliktiko agwna me tis koinothtes anoixtou kwdika, polu perissotero ki empeiro xrono gia thn epilysh enos problhmatos.

11 Eyxaristies.

Ayto to keimeno beltiw8hke syzhtwntas to me megalo ari8mo an8rwpwn, poy boh8hsan sthn aposafhnish toy. Eyxaristw idiaiterws ton Jeff Dutky <dutky@wam.umd.edu> poy proteine ton kanona "to jeka8arisma einai parallhlhsimo" kai boh8hse sthn epejergasia ths analyshs poy ejagetai apo ayton. Epishs, eyxaristw thn Nancy Lebovitz<nancyl@universe.digex.net> gia thn protash ths oti mimoumai ton Weinberg para8etontas ton Kropotkin. Ojunoys kritikh askhsan h Joan Eslinger <wombat@kilimanjaro.engr.sgi.com> kai h Marty Franz <marty@net-link.net> ths listas General Technics. O Paul Eggert <eggert@twinsun.com> parathrhse thn sugkroysh metaju toy anoixtou kai toy GPL monteloy. Eimai eygnwmwn sta melh toy PLUG, omada Xrhstwn Linux ths Filadelfeia, poy prwtoi diabasan thn prwth dhmosieysh toy parontos. Telos, ta sxolia toy Linus Torvalds me boh8hsan polu kai me en8arryne h prwimh yposthrijh toy.

12 Gia Peraiterw Meleth.

Pare8esa polla tmhmata toy biblioy "*The Mythical Man-Month*", toy Frederick P. Brooks. 8erma proteinw thn ekdosh ths 25 epeteioy apo tis ekdoseis Addison-Wesley (ISBN 0-201-83595-9) sthn opoia exei proste8ei to keimeno toy 1986 "*No Silver Bullet*".

H ekdosh einai employtismenh me mia anektimhth 20xronh anadromh, sthn opoia o Brooks ey8ews paradexetai thn kritikh toy arxikou keimenoy to opoio den anteje thn dokimasia toy xronoy. Diabasa gia prwth fora thn anadromh meta thn oysiastikh suntajh aytou toy keimenoy kai ejeplaghn otan diapistwsa oti o Brooks apedide praktikes se pazariwtiko styl sthn Microsoft!

To "*The Psychology of Computer Programming*" toy Gerald M. Weinberg eishgage thn mallon kakws ennooumenh antilhch toy "programmatismou xwris egwismo". An kai den htan o an8rwpos poy 8a anagnwrize thn mataiothta ths "arxhs ths entolhs", htan isws o prwtos poy anagnwrise kai diafwnhse me ayto to shmeio, syndeontas to idiaitera me thn anaptyjh logismikou.

O Richard P. Gabriel meletwntas thn koyltoura toy Unix sthn pro-Linux epoxh, me apro8ymia diafwnouse me thn yperoxh enos prwtogonoy pazariwtikoy styl sto keimeno toy "*Lisp: Good News, Bad News, and How To Win Big*". An kai palaio apo merikes apoceis, ayto to dokimio dikaiws ejymneitai apo toys opadous toy Lisp (metaju aytwn ki apo emena). Enas allhlografos moy ypen8umise oti to kefalaio me titlo "Worse Is Better" einai san problech gia to Linux. To keimeno briskete sto Internet, `<http://www.naggum.no/worse-is-better.html>`.

To biblio *Peopleware: Productive Projects and Teams* (New York; Dorset House, 1987; ISBN 0-932633-05-6), twn De Marco kai Lister, biblio poy den ektimatai opws toy analogei, to opoio me eyxaristhsh eida na to para8etei sthn anadromh toy o Brooks. An kai liga ap' osa lene oi syggrafeis toy einai efarmosima sto Linux h ston anoixto kwdika, h ba8ia gnwsh toys gia tis anagkaies syn8hkes gia dhmioyrgikh doyleia einai ojyderkhs ki ajizei gia ka8e enan poy prospa8ei na eisagei kapoies ajies toy monteloy pazariou sto emporiko logismiko.

Telos, ofeilw na paradextw oti eixa onomasei ayto to keimeno sxedon "O Ka8edrikos kai h Agora", opoy o teleytaios oros shmainei thn Ellhnikh apodosh mias anoixths agoras h enos dhmosioy xwroy syneureshs. Oi gonimes ergasies gia ta "agoraia systhmata" twn Marc Miller kai Eric Drexler, perigrafontas tis emfanizomenes idiothtes twn agoraiwn ypologistikwn systhmatwn me boh8hsan na proetoimastw na skeftw jeka8ara gia analoga fainomena sthn koyltoura toy anoixtou kwdika toy Linux, ta opoia diapistwsa pente xronia argotera. Ayta ta dokimia briskontai sto Internet, `<http://www.agorics.com/agorpapers.html>`.

13 Epilogos: H Netscape Agkaliazei to Pazari!

Einai parajeno na niw8eis oti boh8as na graftei istoria...

Stis 22 Ianoyarioy 1998, peripoy efta mhnes meta thn prwth dhmosieysh aytou toy keimenoy, h Netscape Communications, Inc. ejhggeile thn pro8esh ths*na dhmosieusei ton kwdika toy Netscape Communicator* `<http://www.netscape.com/newsref/pr/newsrelease558.html>`. Mexri thn hmera ths ejaggelias den pisteya oti 8a ginotan kati tetoio.

O Eric Hahn, antiproedros kai Diey8ynths Texnologias ths Netscape moy esteile, amesws meta, to ejhs mhnyma: "Sto onoma olwn ymwn sthn Netscape, 8elw na sas eyxaristhsw poy mas boh8hsate na ftasoyme prwtoi s' ayto to shmeio. Oi skeceis kai ta grapta sas hsan 8emeliwdhs empneuseis gia thn apofash mas".

Thn epomenh ebdomada phga sthn Silicon Valley, meta apo prosklhsh ths Netscape gia mia hmerida (stis 4 Febroyarioy 1998), mazi me koryfaia stelexh kai texnikous. Sxediasame thn strathgikh ekdoshs toy kwdika kai ths adeias kai epejergasthkame kapoia alla sxedia poy elpizoyme oti telika 8a exoyn makropnoes kai 8etikes epiptwseis sthn koinothta toy anoixtou kwdika. Einai polu nwris gia na mpw se leptomereies. Se liges ebdomades 8a yparxoyn neotera.

H Netscape prokeitai na mas paraxwrhsei mias megalhs klimakas alh8inh dokimasia toy pazariwtikoy monteloy ston emporiko kosmo. H koyltoura toy anoixtou kwdika twra antimetwpizei ena kindyno: an to sxedio ths Netscape apotuxei, h idea toy anoixtou kwdika 8a ypobibastei kai o emporikos kosmos den 8a thn janaskeftei gia allh mia dekaetia.

Apo thn allh, ayto einai mia 8eamatikh eykairia. H arxikh antidrash toy Xrhmatisthrioy htan sygkrathmena 8etikh. Dokimazomaste ki emeis, epishs. An h Netscape kerdisei shmantiko meridio agoras apo ayth thn kinhsh isws ekdhlw8ei mia ka8ysterhmenh epanastash sthn biomhxania ypologistwn.

To epomeno etos 8a einai polu didaktiko ki endiaferon.