



Analys av pop-ups generade från adware Kandidatarbete i datavetenskap VT 2003

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Abstract

This thesis is about adware, which is very popular today. The adwares are used to, among other things, down- and upload files from other users on the Internet. One thing that most users of such programs are not aware of is that many of the adwares contain spyware. These spywares install themselves simultaneously with the adwares. Two of the spyware features is to generate pop-ups in the web browser and to direct advertisement from the users web habits. In some cases the users can protect themselves against pop-ups by installing additional software. To investigate these problems, five adwares have been exposed to five tests.

Sammanfattning

Detta arbete handlar om adware-program som i dagens läge är väldigt populära. Programmen används för att bland annat ladda ned och upp filer från andra användare på Internet. Vad många användare av dessa program inte vet är att programmen ofta innehåller spyware. Dessa spyware installeras simultant med adware-programmen. Två av spyware-programmens funktioner är att lägga till pop-ups i webbläsaren samt att rikta reklam efter användarnas surfvanor. I vissa fall kan användarna skydda sig mot pop-ups genom att installera tilläggprogram. För att undersöka dessa saker har fem adware-program utsatts för fem tester.

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1. Introduktion

1.1 Bakgrund

Av de program som ligger i topp på downloads lista över flest nedladdningar är de flesta adware-program. Adware innehåller ofta spyware, dessa spyware installeras samtidigt som adware-programmet. En av spyware-programmens funktioner kan vara att lägga till pop-ups på användarens dator och rikta dessa pop-ups efter användarens surfvanor. Reklam visas ofta också som i form av banners¹ som kan läggas till på olika hemsidor. En annan funktion i spyware-programmen är, enligt adware-programmens licensavtal, att skanna användarens dator, för att se vilka hemsidor som besökts, och skicka information tillbaka till en server. Vilken information som skickas vidare nämns inte i licensavtalet, utan det står bara att de värnar om användarnas personliga integritet. Denna funktion har inte behandlats utan arbetet utreder endast pop-ups och riktning av reklam utifrån användarens surfvanor. För att öka förståelsen för ovan nämnda begrepp följer nedan en kort beskrivning för dessa.

Freeware är program som erbjuds till användaren utan kostnad. Ofta är dessa program små applikationer som finns att ladda ned från diverse sidor på Internet. De flesta av dessa program är kopieringsskyddade, så man får inte t.ex. återanvända dessa i ett eget program.

Adware är en mjukvara som visar reklam när programmet är igång. Reklamen visas genom pop-ups eller i en banner. Fördelen med adware är att programtillverkarna får betalt av bolagen som visar sin reklam, på detta sätt kan kostnaderna hållas nere för slutanvändaren. Adware kan innehålla spyware.

Spyware är teknik som samlar information om en person eller en organisation utan deras kännedom. På Internet är spyware programvara som har installerats i någons dator för att samla information om personen i fråga. Informationen säljs sedan vidare till annonsföretag. Spyware installerar sig på en dator, antingen som ett virus eller genom att användaren installerar ett program. Datainsamlingsprogram som är installerade med användarens kännedom och där användaren vet vilken information som samlas in kan inte kallas spyware.

Peer-to-peer är en kommunikationsmodell mellan användare där varje användare har samma förmågor och kan initiera en kommunikationssession.

Pop-ups är en GUI² som ”plötsligt” uppenbarar sig, vanligtvis i ett litet fönster på skärmen. En pop-up kan utlösas av att man klickar på en länk, pop-ups kan även komma utan inverkan av användaren. En pop-up måste vara mindre än bakgrunden på skärmen, annars är det en utbytesinterface.

¹ En banner är en grafisk bild som visar namn eller identitet på en hemsida.

² Graphical User Interface

1.2 Problembeskrivning

Intresset över att skriva detta arbete kommer från att jag har många gånger förbluffats över antalet pop-ups som genereras när Internet besöks. Jag ställde mig frågande om det var hemsidorna jag besökte som var anledningen till pop-ups eller om det var programvaror som jag hade installerat. Efter att snabbt undersökt ämnet bestämde jag mig för att grundligt reda ut fenomenet pop-ups. Nedanstående hypoteser formulerades för att kunna utföra tester och att svara på dem.

- Spyware installeras samtidigt som adware.
- Spyware lägger till pop-ups i webbläsaren.
- Freeware som ZoneAlarm och Pop-up stopper skyddar användaren mot pop-ups från spyware.
- Spyware riktar reklam efter surfvanor.

1.3 Mål

Målet med arbetet var att utreda om huruvida testerna svarar på hypoteserna, d.v.s. att se: Om spyware installeras samtidigt som de populära adware-programmen, i vilken omfattning det är spyware i adware som genererar pop-ups på Internet eller om det är hemsidorna som visar många pop-ups, om enkla freeware-program som ZoneAlarm 3.7.098 och Pop-Up Stopper 3.01 kan minska antalet pop-ups genererade från spyware samt om spyware så snabbt som på 48 timmar riktar reklam i pop-ups efter användarnas surfvanor. Det sista, men absolut inte det minst viktiga, målet med arbetet var att visa för användare av dessa program att om programmen genererar pop-ups så betalar han/hon för programmet genom att titta på reklam.

1.4 Målgrupp

Denna utredning vänder sig till alla användare och intressenter av adware. Definitionen intressenter är väldigt stor men samtidigt väldigt intressant. Den kan innefatta studenter som sitter nätterna igenom och laddar ned filer. En helt annan kategori av intressenter kan vara föräldrar till barn och ungdomar som vill vara mer insatta i vad barnens program har för olika funktioner och hur dessa påverkar barnen. Den stora spännvidden på intressenter speglar programmets stora popularitet och visar att de används av flera olika grupperingar.

1.5 Avgränsning

Då spyware och adware är enormt stora områden har utredningen avgränsats enligt följande faktorer:

- Adware
- Pop-ups
- Tidsbegränsad riktning av reklam
- Popularitet
- Standardinställningar på alla testprogram och tillägsprogram

Endast adware-program, d.v.s. program som är reklamfinansierade och gratis för användaren att ladda ned och använda, kommer att användas i testerna. Detta för att få så lika program som möjligt samt att begränsa testerna till en programtyp.

Två av spyware-programmens många funktioner är att generera pop-ups samt att rikta reklam efter användarens surfvanor. Dessa två funktioner ligger till grund för stora delar av arbetet och presenteras mest i arbetet. Anledningen till att koncentrera arbetet mot pop-ups och riktning av reklam är att om alla spyware-programmens funktioner skulle behandlas, skulle arbetet bli mycket stort. Tilläggas kan göra att ingen statistik kommer att göras över vilken sorts pop-ups som genereras, t.ex. pop-ups med bil-, rese-, sport- och försäljningsanknytning. Arbetet behandlar endast antalet pop-ups som genereras.

Med avgränsningen tidsbegränsad riktning av reklam menas att ett test³ har gjorts under 48 timmar för att se om spyware på den korta tiden hinner med att rikta reklam efter användarens surfvanor. Anledningen till denna korta tid på testet är att ett längre test inte skulle hinnas med i arbetet.

De program som har valts ligger alla på downloads⁴ topplista över flest nedladdningar. För att förstå testprogrammets enorma popularitet kan man titta på siffrorna över antalet nedladdningar programmet har på download. Ett exempel är att KaZaA Media Desktop 2.01 har laddats ned 225 516 252⁵ gånger sedan den 13 februari 2003.

Alla test- och tilläggsprogram har installerats utan att några funktioner har ändrats, d.v.s att när programmen har installerats har bara "Next" i installationsmenyn använts.

³ Se kapitel 3.4

⁴ <http://download.com/>

⁵ Antal nedladdningar från 2003-02-13 till 2003-05-13.

2. Metodbeskrivning

Utredningen gick ut på att installera fem populära adware-program samt att göra tester på dessa. Efter testerna har en analys, diskussion samt en slutsats, utifrån testresultaten framställts. Valet att använda adware-program var lätt då många använder dessa program för bland annat fildelning och är väl införstådda med hur de fungerar.

2.1 Testmiljö

Testerna körs på en dator med följande huvudkomponenter: Amd XP 1600-processor, 256 Mb DDR-minne och 30Gb hårddisk. Datorns operativsystem är Microsoft⁶ Windows XP Professional. De program som använts till att utföra testerna är listade nedanför med en kort beskrivning.

Ad-aware 5.83⁷

Ad-aware är ett program som skannar datorns RAM, register, hårddisk och externa lagringsenheter för kända spyware-komponenter. Efter att programmet hittat komponenterna kan man lätt ta bort dessa eller lägga de i karantän. Programmet användes för att söka upp spyware-komponenter i test ett.

Pop-Up Stopper 3.01⁸

Detta program stoppar pop-ups genererade från t.ex. Internet eller andra program. Programmet användes för att försöka hindra pop-ups i test tre.

ZoneAlarm 3.7.098⁹

ZoneAlarm är en enkel brandvägg som installerar och konfigurerar sig med en enkel wizard. När program vill ha åtkomst till Internet visas dessa i en ruta, som man säger jag eller nej till om programmet ska få ha tillgång till Internet. Programmet användes för att försöka hindra pop-ups i test tre.

VMware 3.2.0¹⁰

VMware Workstation är en virtuell maskinprogramvara för tekniska proffs. Programmet låter dig köra olika versioner av operativsystem simultant på en dator. Programmet användes i test två, tre och fyra.

2.2 Testprogram

De adware-program som användes i testerna är listade nedanför tillsammans med en kort beskrivning av respektive program.

⁶ <http://www.microsoft.com>

⁷ <http://www.lavasoftusa.com/>

⁸ <http://www.panicware.com/index.html>

⁹ <http://www.zonelabs.com/store/content/home.jsp>

¹⁰ <http://www.vmware.com/>

BonziBuddy 2.02¹¹

BonziBuddy är en interaktiv, talande webbkompis. Efter att användaren lärt honom vilka intressen han/hon har, så söker han efter sidor på Internet som användaren kan tänkas tycka om. BonziBuddy kan även läsa upp nyheter, e-mail, virusvarningar etcetera. Med programmets kalenderfunktioner påminner BonziBuddy om möten och andra saker.

Download Accelerator Plus 5.3¹²

Download Accelerator är ett program som hjälper till med nedladdningar från Internet. Programmet kan öka nedladdningshastigheten med upp till 300 %. Programmet innehåller multiserveruppkopplingar för bästa möjliga prestanda från användarens bredband. Andra funktioner är att programmet hjälper användaren att återuppta brutna uppkopplingar, datorhaveri och andra fel. Programmet letar även efter andra spegelsidor för att maximera nedladdningshastigheten.

Gator eWallet 3.1¹³

Gator eWallet fyller automatiskt i formulär och kommer ihåg användarnamn och lösenord. När man kommer till ett formulär på Internet, fyller Gator eWallet i formuläret med en knapptryckning på musen. Programmet sparar användarens information i en, på användarens dator, krypterad fil.

KaZaA Media Desktop 2.1¹⁴

KaZaA Media Desktop 2.1 är en andragenerationens peer-to-peer fildelningsprogram, som letar efter och laddar ned filer från andra KaZaA-användare. Användaren kan också organisera, titta på, och spela media genom en integrerad media-jukebox. KaZaA stöder ljud, video, bilder, dokument och andra filformat. Programmet innehåller också en funktion där användarna kan kommunicera med varandra.

Morpheus 2.0¹⁵

Morpheus är ytterligare ett andragenerationens peer-to-peer fildelningsprogram. Funktionerna är liknande de på KaZaA Media Desktop 2.1.

¹¹ <http://www.bonzi.com/bonzibuddy/bonzibuddyfreehom.asp>

¹² <http://www.speedbit.com/>

¹³ <http://www.gator.com/>

¹⁴ <http://www.kazaa.com/us/index.php>

¹⁵ <http://www.morpheus.com/>

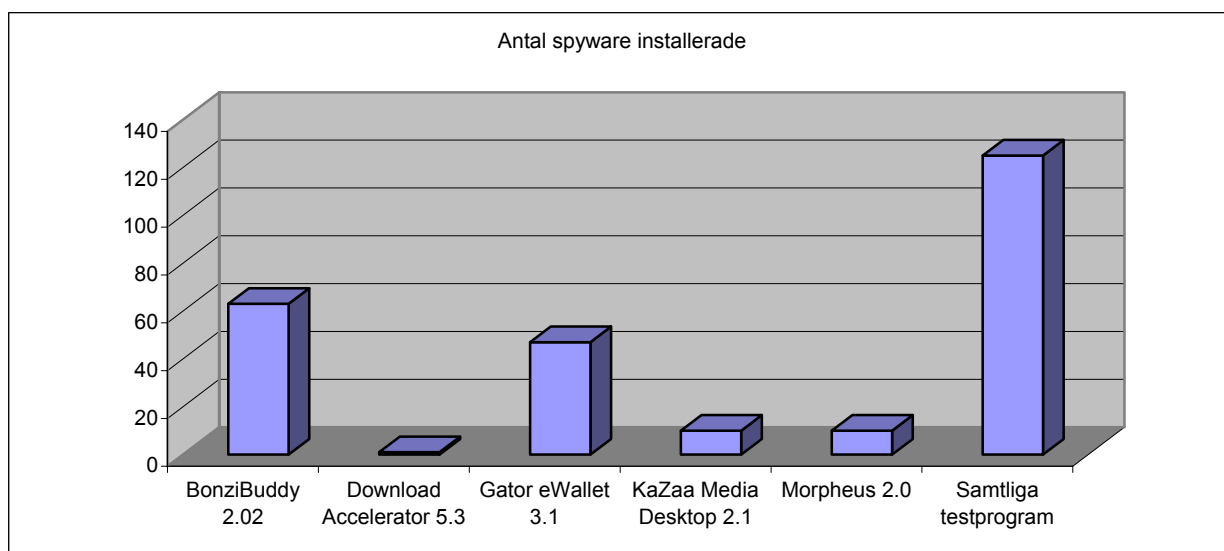
3. Genomförande

3.1 Test ett

Efter installationen av respektive testprogram och omstart görs ett test med Ad-aware 5.83 för att se om aktuellt program installerar spyware på datorn.

Test 1 skedde direkt efter installationerna av respektive program. Tidsåtgången blev inte högre än 1 timme per program. 1 timme per program * 5 program ger en total summa på 5 timmar för *Test 1*. Datorn har formaterats innan installation av varje testprogram.

3.1.1 Resultat



Mängden av spyware-komponenter som installerades är väldigt stor i några av testprogrammen. Värst är BonziBuddy 2.02 och Gator eWallet 3.1 med 63 respektive 47 komponenter. Tredje, fjärde och femteplatsen innehavs av KaZaA Media Desktop 2.1, Morpheus 2.0 och Download Accelerator 5.3 med 10, 10 respektive 1 komponenter installerade.

3.1.2 Analys

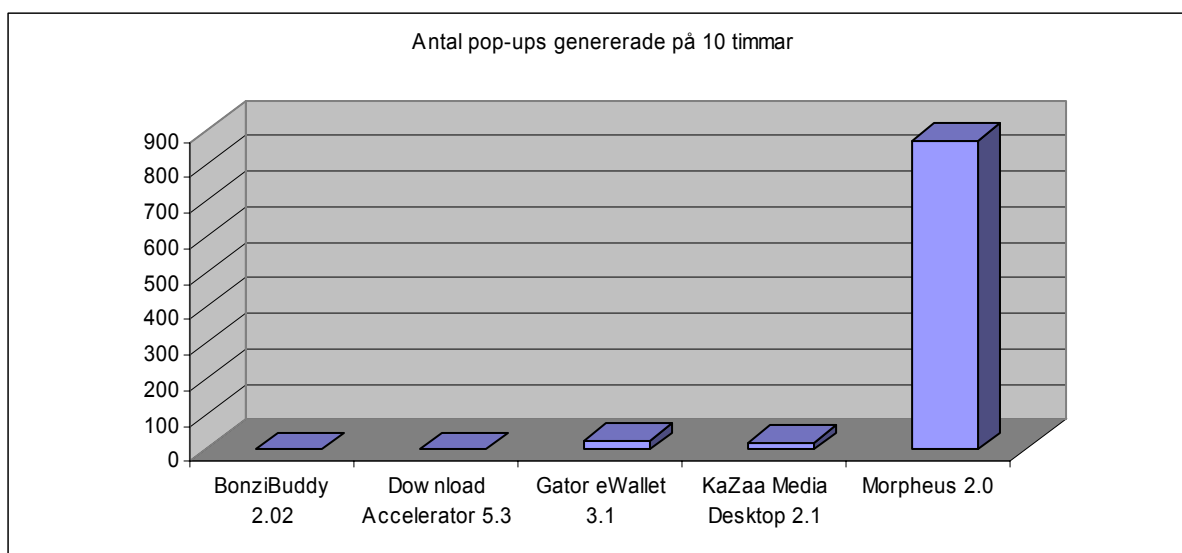
Test ett visar att alla de testade programmen installerar spyware. Detta kom inte som någon överraskning och resultatet av testet var väntat. Anledningen till att resultatet var väntat är att programmen är adware, d.v.s. sponsrade program som användaren får använda utan kostnad. Anmärkningsvärt är den stora skillnaden i antalet installerade komponenter.

3.2 Test två

Efter installationen av respektive testprogram kommer hemsidor¹⁶, med och utan pop-ups att besökas. Meningen med att besöka dessa sidor är att se om pop-ups läggs till. För att få ett så trovärdigt resultat som möjligt har den aktuella hemsidan besökts simultant på den virtuella datorn. Fördelen med detta är att testprogrammen har installerats på den vanliga datorn. På så vis är den virtuella datorn helt fri från tilläggsprogram och på så sätt visas webbsidorna utan yttre inverkan. Om en pop-up läggs till, utöver de från den aktuella hemsidan som besöks, räknas detta som ett utfall, d.v.s. en avvikelse. Alla avvikelser räknas ihop och sammanfattas i diagrammet nedan.

Test 2 har utförts i följande block: Alla testprogrammen kördes var för sig. Tidsåtgången för *Test 2* blev 10 timmar * 5 för antalet program. Summan för *Test 2* stannade alltså på 50 timmar. Datorn har formaterats innan installation av varje testprogram. Datorn har startats om minst tre gånger vid varje testtillfälle.

3.2.1 Resultat



I test två är det Morpheus 2.0 som ligger i topp. Programmet genererar hela 870 pop-ups på en 10-timmarsperiod. Gator eWallet 3.1 och KaZaa Media Desktop 2.1 genererar 25 respektive 20 pop-ups. BonziBuddy 2.02 och Download Accelerator 5.3 genererar inga pop-ups.

3.2.2 Analys

Test två visar att tre av de fem testade programmen genererar pop-ups. Testet visar att det inte finns något samband mellan antalet spyware-komponenter och pop-ups. Detta visar särskilt Morpheus 2.0 som installerade 10 spyware men genererade hela 870 pop-ups. BonziBuddy 2.02 som installerade 63 spyware-komponenter genererar inte en enda pop-up. Dock ska man

¹⁶ se bilaga 1

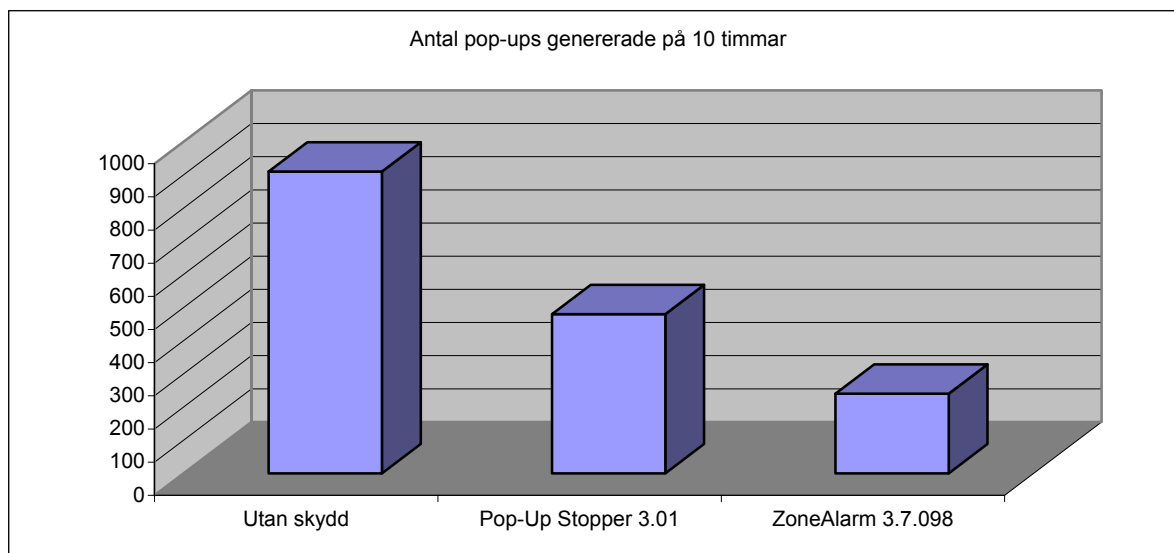
inte dra slutsatsen att BonziBuddy 2.02:s spyware inte har någon funktion, som sagt innan är att generera pop-ups bara en av många funktioner spyware kan utföra.

3.3 Test tre

I detta test är samtliga testprogram installerade och körs samtidigt. De hemsidor¹⁷ som har besökts är samma som i test två. ZoneAlarm 3.7.098 och Pop-Up Stopper 3.01 är, var för sig, verksamma samtidigt som programmen körs. Ett test körs även utan skydd, d.v.s. utan några program installerade som ska hindra uppkomsten av pop-ups. Detta test körs för att se hur många pop-ups samtliga testprogram genererar tillsammans. På detta viset får man en bild av om ett freeware-program kan stoppa eller i alla fall mildra uppkomsten av pop-ups. Om en pop-up läggs till, utöver de från den aktuella hemsidan som besöks, räknas detta som ett utfall, d.v.s. en avvikelse. Alla avvikelser räknas ihop och sammanfattas i diagrammet nedan. För att få ett så trovärdigt resultat som möjligt har den aktuella hemsidan besökts simultant på den virtuella datorn.

Test 3 utfördes i följande block: Alla testprogrammen installeras och körs samtidigt. Test 3 tog 10 timmar * 3 block som är, utan skydd, Pop-Up Stopper 3.01 på och ZoneAlarm 3.7.098 på. Test 3 stannar på 30 timmar. Datorn har formaterats innan installation av alla testprogrammen. Datorn har startats om minst tre gånger vid varje testtillfälle.

3.3.1 Resultat



Med alla programmen installerade och igång genereras 910 pop-ups. Antalet pop-ups minskar till 480 med Pop-Up 3.01 Stopper igång. ZoneAlarm 3.7.098 minskar denna siffran till 240 pop-ups.

¹⁷ Se bilaga 1

3.3.2 Analys

Test tre visar att en brandvägg får ner antalet pop-ups väsentligt. Dock för att programmen som t.ex. KaZaA Media Desktop 2.1 ska fungera som en server är man tvungen att låta dessa få tillträde genom brandväggen. På detta sätt kommer information in och ut genom datorn ändå, med pop-ups som följd. Man kan också nämna att spyware-programmen blir mer och mer tekniskt avancerade för varje dag. Programmerare implementerar nya funktioner så att spyware-programmen ska kunna lura och komma igenom brandväggar.

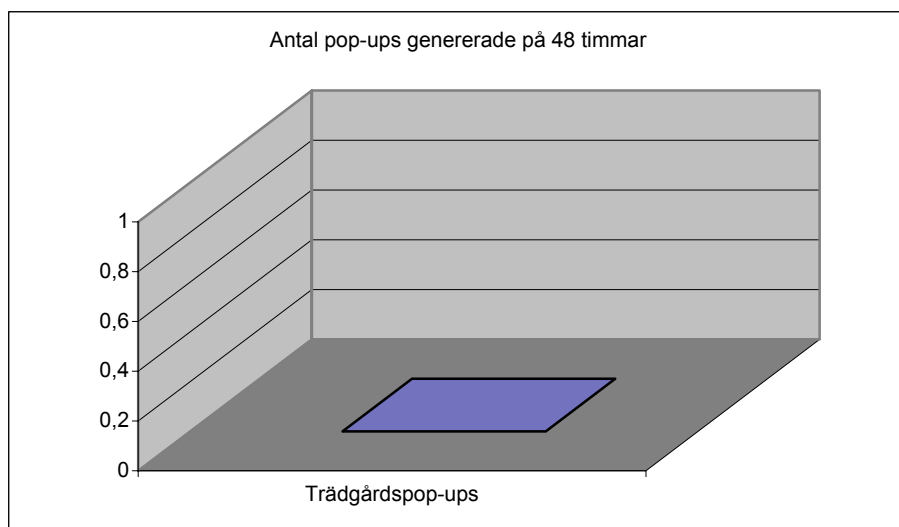
Pop-up Stopper 3.01 fungerar väldigt dåligt, programmet blockerar de flesta pop-ups men vissa slinker emellan ändå. En stor nackdel med programmet är att det även blockerar webbsidor som startas i ett nytt fönster.

3.4 Test fyra

Detta test gick ut på att se om spyware i de aktuella adware-programmen ändrar pop-ups efter användarens surfvanor. Alla testprogrammen är installerade, därefter har bara hemsidor med trädgårdsinriktning¹⁸ besökts. Sidorna besöks sporadiskt under 48 timmar. Detta för att se om spyware-programmen ändrar sina pop-ups så att de efter, i detta fall 48 timmar, ändras så att de visar reklam med trädgårdsanknytning. Alla avvikelser, utöver de från den aktuella hemsidan som besöks, räknas ihop och sammanfattas i diagrammet nedan. För att få ett så trovärdigt resultat som möjligt har den aktuella hemsidan besökts simultant på den virtuella datorn. Att bara hemsidor med anknytning till trädgårdar besöktes, var ett förslag från min handledare.

Tidsåtgången för *Test 4* är 48 timmar. Datorn har formaterats innan installationen av alla testprogrammen. Datorn har startats om minst tre gånger vid testtillfället.

3.4.1 Resultat



På 48 timmar genererades inga trädgårdspop-ups överhuvudtaget, trots att bara sidor med anknytning till det aktuella området besöktes.

¹⁸ Se bilaga 2

3.4.2 Analys

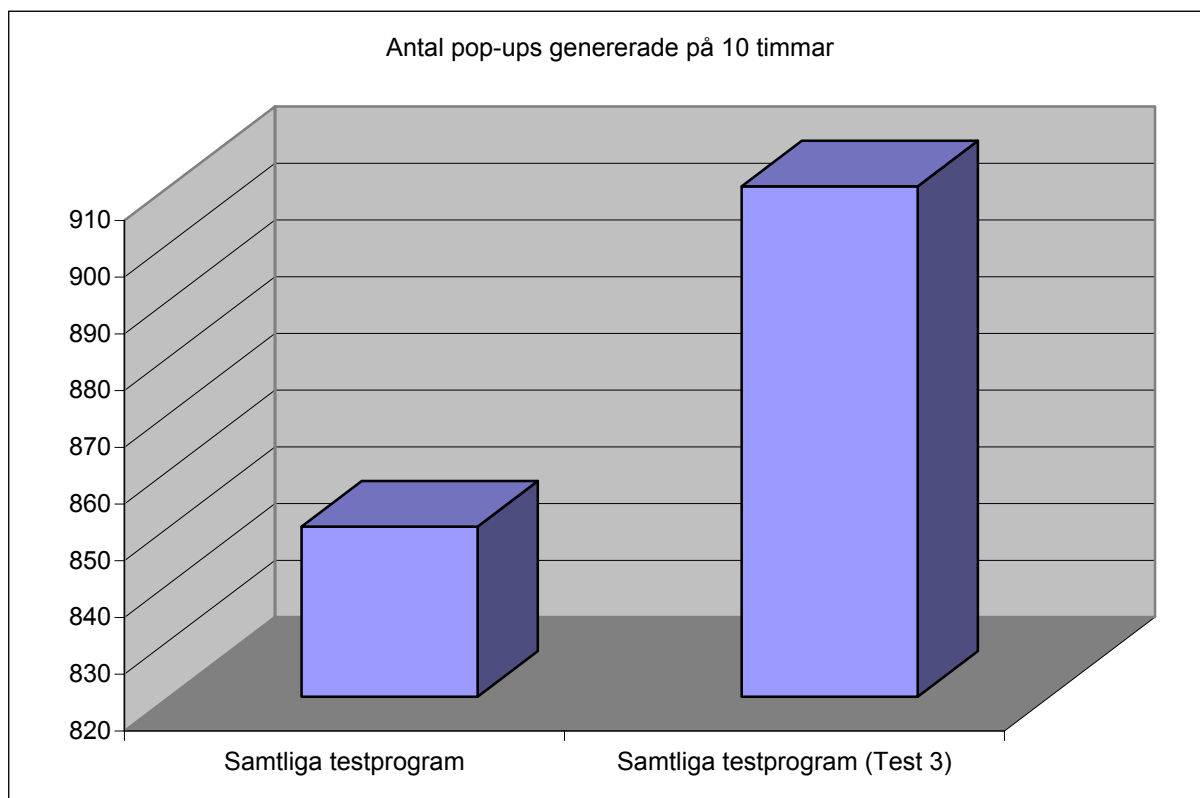
Test fyra visar att spyware inte riktar reklam så snabbt som på 48 timmar. Programmets licensavtalen¹⁹ säger att tredjeparts programvara samlar in information om användaren. Om denna information används för att rikta reklam så riktas inte reklamen så snabbt som på 48 timmar.

3.5 Test fem

Test fem är upplagt så att alla fem testprogrammen är installerade. Därefter sattes alla programmen igång och antalet pop-ups räknas under 10 timmar. Skillnaden mot test tre är att Internet inte besöks, utan testet görs endast på datorns skrivbord. Datorn är uppkopplad mot ett nätverk så att testprogrammen kan kommunicera med Internet, men ingen webbläsare är igång. Om en pop-up läggs till räknas detta som ett utfall, d.v.s. en avvikelse. Alla avvikelser räknas ihop och sammanfattas i diagrammet nedan.

Tidsåtgången för *Test 5* är 10 timmar. Datorn har formaterats innan installationen av alla testprogrammen. Datorn har startats om minst tre gånger vid testtillfället.

3.5.1 Resultat



På detta 10-timmarstest generas hela 850 pop-ups. Detta utan att någon gång besökt Internet. Skillnaden mot test tre där 910 pop-ups genereras, med samma testupplägg men testet placerat på Internet, är inte stor.

¹⁹ Se bilaga 3

3.5.2 Analys

Många av programmen genererar pop-ups utan att Internet besöks. Detta beror antagligen på att företagen som köper reklam av programtillverkarna vill synas till varje pris. Någon eller några av testprogrammen genererar stora mängder pop-ups med reklam för telefonabonnemang. Tilläggas kan att reklamen, i telefonabbonemangens fall är regionbestämd²⁰.

²⁰ Med regionbestämd menas att det i detta fall är svensk reklam som visas.

4. Diskussion

Det pop-ups i första hand skapar hos mig är förvirring. Anledningen till förvirringen är att jag inte vet om pop-upsen som dyker upp, om de tillhör hemsidan jag besöker eller om de genereras av något program som jag använder för tillfället.

Andra saker som har uppmärksammats är att inne på sidor där försäljning förekommer och man ska t.ex. använda PayPal²¹ för att betala en vara, så har spyware ändrat länken till en annan betalningsfunktion. Det störande momentet att alltid behöva stänga ned pop-ups är också relevant. Morpheus 2.0 blev helt oanvändbart då pop-ups genererades i en väldig fart. Detta kan, i Morpheus 2.0:s fall, leda till att användare söker sig till andra liknande programvaror. Jag tror att testprogrammen i många fall lever på användarnas okunnighet och att användarna tycker att det är bra att få en gratis programvara och bryr sig inte om att läsa licensavtalen och på så sätt inte bryr sig om följderna. Programmets licensavtal²² är väldigt långa och presenteras i många fall i en liten ruta med en scrollist. Detta gör licensavtalen väldigt oöverskådliga. Om användaren läser licensavtalen står det dock att tredjeparts programvara, som samlar in information om användaren, kommer att installeras. Värt att tillägga är att BonziBuddy 2.02 installerade spyware innan användaren har godkänt licensavtalet och att de licensavtalen som presenteras i bilagorna är klippta versioner och innehåller bara delarna som behandlar spyware och tredjepartsprogramvara.

De obehag jag känner när jag använder de här programmen är att jag inte vet vilken information som de olika spyware-programmen samlar in från min dator. Slutsatsen man kan dra är att om jag skulle ha haft viktig information på min dator, skulle jag använda dessa program sparsamt, om jag skulle ha använt de överhuvudtaget. En rätt konfigurerad brandvägg hjälper, som testerna visar, till en viss del att dra ner antalet pop-ups och då också antagligen att dra ner spyware-programmens funktioner.

Användare av dessa program kan söka sig till liknande program som inte innehåller spyware. Ett sådant program är KaZaA Lite²³. KaZaA Lite är ett dock ett olagligt program som bygger på vanliga KaZaA Media Desktop 2.1, men som har spyware-programmen bortplockade.

4.1 Testernas relevans

Gemensamt för alla testerna är att de bara gäller för ovanstående testprogrammen med aktuell version, testade under tidsperioden 2003-02 till 2003-04. Anledningen till detta är att samma program, men i en annan version kan ge helt andra utfall med tanke på t.ex. antal spyware-komponenter som installeras och antalet pop-ups som genereras. Detta gäller även programmen Ad-aware 5.83, Pop-Up Stopper 3.01 och ZoneAlarm 3.7.098. Om andra program än ovanstående tre, med samma funktioner hade använts är det inte säkert att utfallen i testerna hade blivit de samma. Vidare är det möjligt att andra utfall hade framkommit i testerna, med tanke på antalet pop-ups som genereras, om andra hemsidor än de i bilagorna hade besökts. Det är också möjligt att spyware-programmen i testerna hade riktat reklam om ett annat område som t.ex. sport, bilar eller vadslagning hade valts istället för trädgårdar.

²¹ Betaltjänst för betalning över Internet, <http://www.paypal.com>

²² Se bilaga 3.

²³ <http://www.k-lite.tk>

4.2 Förslag på fortsatt forskning

Vilken information samlas in från tredjepartsprogrammen som medföljer populära adware?
Är det bara information som har med användarens surfvanor att göra, eller samlar programmen även in uppgifter som email-adresser och eller andra personliga tillhörigheter som dokument etcetera? Dessa frågor är mycket intressanta att besvara, anledningen till detta är att många av programmets användare antagligen är intresserade att veta vilken information som samlas in.

5. Slutsats

I dagens läge är det väldigt populärt att använda adware. Med adware kan man bland annat ladda ned och upp filer från andra användare på Internet. I detta arbete är fem tester gjorda som svarar på fyra hypoteser. Utgången av testerna visar att alla de testade adware-programmen installerade spyware simultant med sig själva. Tre av de fem adware-programmen genererar pop-ups, i vissa fall stora mängder av pop-ups. Mycket intressant är att det inte finns något sammanhang mellan antalet spyware-komponenter som testprogrammen installerar samt hur många pop-ups som dessa komponenter genererar. Användaren kan skydda datorn mot pop-ups genom att installera en brandvägg och andra tillägsprogram. Tester visar att ZoneAlarm 3.7.098 och Pop-Up Stopper 3.01 får, i viss mån, ner antalet pop-ups i webbläsaren. Trots det är ZoneAlarm 3.7.098 och Pop-Up Stopper 3.01 inte på något sätt fulländade att hantera och ta bort pop-ups, programmen har brister inom detta område. Om Spyware riktar reklam efter användarens surfvanor så riktas inte reklamen så snabbt som på 48 timmar. Testerna visar även att man inte behöver besöka Internet för att spyware ska generera pop-ups. En jämförelse mellan två tester visar att det endast skiljer 60 pop-ups på 10 timmar om man besöker Internet eller om man håller sig på datorns skrivbord. Slutligen ett tips till användare av adware-program, använd dessa program sparsamt, utför ofta tester med Ad-aware, installera och konfigurera en brandvägg, läs igenom licensavtalen och använd sunt förnuft. Ovanstående tips är ingen säkerhet på att användare inte drabbas av spyware-programmens olika funktioner, men de kan mildra effekterna.

6. Litteraturförteckning

Då spyware är ett nytt fenomen finns den mesta informationen än så länge bara i diverse forskningsdatabaser. Det har varit stora problem att hitta relevant information inom området, följande artiklar har letas upp i ovanstående medium och använts till arbetet:

*Spyware, Adware, Systemware and Cookies*²⁴

*A Framework for Understanding Vulnerabilities in Firewalls Using a Dataflow Model of Firewall Internals*²⁵

Övrig litteratur som har använts är följande:

*The Essence of Computing Projects - A Student's Guide*²⁶

*Forskningsmetodikens grunder*²⁷

*Experimentation in software engineering*²⁸

²⁴ Duke David (2002), Network Security, Volume 2002, Issue 9, 1 September 2002, Pages 4-5

²⁵ Mike Frantzen, Florian Kerschbaum, E. Eugene Schultz and Sonia Fahmy (1 May 2001), Computers & Security, Volume 20, Issue 3, Pages 263-270

²⁶ Dawson C. W. (2000), London

²⁷ Patel. R. B. Davidson (1994), Studentlitteratur Lund

²⁸ Wohlin Claes (2000), Kluwer Academic Publishers

7. Referensförteckning

Nedanstående sidor har besökts mellan januari och maj 2003.

<http://download.com/>
<http://www.microsoft.com>
<http://www.lavasoftusa.com/>
<http://www.panicware.com/index.html>
<http://www.zonelabs.com/store/content/home.jsp>
<http://www.vmware.com/>
<http://www.bonzi.com/bonzibuddy/bonzibuddyfreehom.asp>
<http://www.speedbit.com/>
<http://www.gator.com/>
<http://www.kazaa.com/us/index.php>
<http://www.morpheus.com/>
<http://www.paypal.com/>
<http://www.k-lite.tk>

Bilagor

Bilaga 1: Förteckning över besökta hemsidor i test två och tre

Nedanstående sidor har besökts mellan januari och maj 2003.

<http://www.aftonbladet.se>
<http://www.expressen.se>
<http://www.kristianstadsbladet.se>
<http://www.hattrick.org>
<http://www.managerzone.com>
<http://www.eastcoastskates.com>
<http://www.teamtalk.com>
<http://www.planetfootball.com>
<http://www.safc.com>
<http://www.mff.se>
<http://www.bl.se>
<http://www.svenskafans.com>
<http://www.hotmail.com>
<http://www.lushlongboards.com>
<http://www.skatepool.com>
<http://www.sportal.nu>
<http://www.pricerunner.com>
<http://www.alienbase.com>
<http://www.bth.se>
<http://www.planettonyhawk.com>
<http://www.netonnet.com>
<http://www.pricerunner.com>
<http://www.datorbutiken.com>
<http://www.mh.se>
<http://www.hkr.se>
<http://www.bovision.se>
<http://www.hemnet.se>
<http://www.motogp.com>
<http://www.ballreviews.com>
<http://www.idg.se>
<http://www.di.se>
<http://www.dalhems.com>
<http://www.svt.se>
<http://www.tv4.se>
<http://www.kanal5.se>
<http://www.tv.nu>
<http://www.goteborg.se>
<http://www.chalmers.se>
<http://www.blocket.se>
<http://www.cometskateboards.com>

Bilaga 2: Förteckning över besökta hemsidor i test fyra

Nedanstående sidor har besökts mellan januari och maj 2003.

<http://www.alltomtradgard.se>
<http://www.odla.nu>
<http://www.tradgard.org>
<http://www.hemtradgard.com>
<http://www.gunnebotradgard.com>
<http://www.hammenhogs.com>
<http://www.rosendaltradgard.com>
<http://www.sandath.net>
<http://www.klivin.nu>
<http://www.villamyhre.com>
<http://www.chicago-botanic.org>
<http://www.burpee.com>
<http://www.gardeners.com>
<http://www.gardenguides.com>
<http://www.gardennet.com>
<http://www.gardenweb.com>
<http://www.icangarden.com>
<http://www.mobot.org>
<http://www.garden.org>
<http://www.nybg.org>

Bilaga 3: Delar av licensavtalen för testprogrammen

Samtliga licensavtal är från februari till maj 2003.

- **KaZaA End User License Agreement**

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IPinsight uses a software application to determine Internet users' connection speeds and neighborhood-level geographic locations. It sells this non-personally-identifiable data to web sites, which use the data to geographically target their ads and to decide whether to use rich media ads (for fast connection speeds) or standard ads. Finally, your geographic information is used to make educated guesses about the demographics of your household (things like income range, education, whether there are children present, etc.)

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The IPinsight Software does not collect any data that is personally identifiable. Further, the Software will not interfere with the operation of your computer's hard-drive or degrade system performance in any way. At any time you can delete the IPinsight Software by using the Microsoft® Windows® add/remove programs function or by following the instructions on the www.IPinsight.com website.

IPinsight has a general policy of openness about developments, practices, and policies with respect to collected data. We state in detail what data we collect, and why we collect it.

IPinsight Software generates Line Speed, Geography, User ID, and IP address information, which it transmits to the IPinsight servers for use in the preparation of the company's data file products.

Line Speed Test: On a periodic basis, the IPinsight Software communicates with the IPinsight server, which instructs the Software to request a small fixed-size web page. Once the web page is loaded the Software records the length of time between the request and the completed load. This is recorded in milliseconds. A report is sent back to the IPinsight server with the exact size (including HTTP headers) of the web page and the download time. This enables IPinsight to estimate Internet users' connections speeds (e.g. dial-up, DSL, cable).

Geography Test: IPinsight estimates neighborhood-level geography of the user based upon postal code. The IPinsight Software monitors the users' form submissions for the presence of street name and postal code name value pairs. On a periodic basis these street names and postal code values are communicated to the IPinsight server, along with the street number rounded to the nearest 50 (e.g. 115 Main Street gets transmitted as 100 Main Street). The reason for the acquisition of street names and non-specific but approximated street numbers is to determine the zip+4 location (nine-digit zip code) of the user. Once the zip+4 location has been determined, the street name is discarded.

Unique Identifier: IPinsight maintains file integrity through the use of a unique random number (GUID) for each user, which is stored in the user's Windows Registry.

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(<http://www.ftc.gov/bcp/online/edcams/kidzprivacy/index.html>)

If you have any questions about the children's privacy statement or the practices of IPinsight you can contact: IPinsight, 36 West 89th Street, New York, New York 10024

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Effective: August 2002

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