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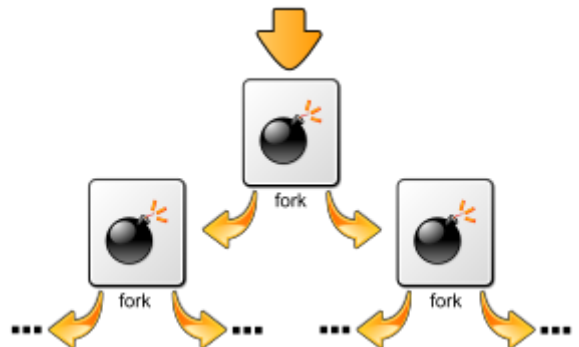
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History

Implementation

A classic example of a fork bomb is the Unix shell one `:(){ :|:& };:`, which can be more easily understood as:

```
fork() {  
    fork | fork &  
}  
fork
```

In it, a function is defined (`fork()`) as calling itself (`fork`), then piping (`|`) its result to a background job of itself (`&`).

The Windows equivalent, given the limitations in system calls, could be written as such in batch:

```
@echo off  
start  
copy c:\fork{  
pause  
goto start
```

An even shorter version of this can be achieved by using anonymous functions:

```
%0 | %0
```

Prevention

As a fork bomb's mode of operation is entirely encapsulated by creating new processes, one way of preventing a fork bomb from severely affecting the entire system is to limit the maximum number of processes that a single user may own. On Linux, this can be achieved by using the *ulimit* utility; for example, the command `ulimit -u 30` would limit the affected user to a maximum of thirty owned processes.^[6] On PAM-enabled systems, this limit can also be set in `/etc/security/limits.conf`,^[7] and on FreeBSD, the system administrator can put limits in `/etc/login.conf`.^[8] Modern Linux systems also allow finer-grained fork bomb prevention through cgroups and process number (PID) controller.^[9]

See also

- Deadlock
- Logic bomb
- Time bomb (software)

References

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5. Hammond, Mark (2000). *Python Programming On Win32: Help for Windows Programmers*. p. 35. ISBN 1565926218.
6. Cooper, Mendel (2005). *Advanced Bash Scripting Guide*. pp. 305–306. ISBN 1430319305.

7. Soyinka, Wale (2012). *Linux Administration: A Beginners Guide*. pp. 364–365. ISBN 0071767592.
8. Lucas, Michael W. (2007). *Absolute FreeBSD: The Complete Guide to FreeBSD*. pp. 198–199. ISBN 1593271514.
9. "Process Number Controller in Documentation/ as appeared in Linux kernel 5.3" (<https://www.kernel.org/doc/html/latest/admin-guide/cgroup-v1/pids.html>). October 8, 2019.

External links

- [Examples of fork bombs in many languages \(https://github.com/aaronryank/fork-bomb\)](https://github.com/aaronryank/fork-bomb)
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