

Networking in GEOS - Some Preliminary Results

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World of Commodore

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The Goal

- ✓ networked apps with full availability of GEOS API
- ✓ built natively on the '64 using geoProgrammer
- ✓ TCP/IP stack either linked to the program or built as a single binary that can be loaded from within the program
- ✓ ability to create a "template" project so others can write similar apps

The Issues

Most TCP/IP stacks for the Commodore assume they will have complete control over the machine:

- ✓ memory mapping (where the stack loads)
- ✓ zero-page usage (how much and where)
- ✓ ability to do text/keyboard I/O
- ✓ use of I/O registers (e.g. CIA timers)

The Solution: ip65

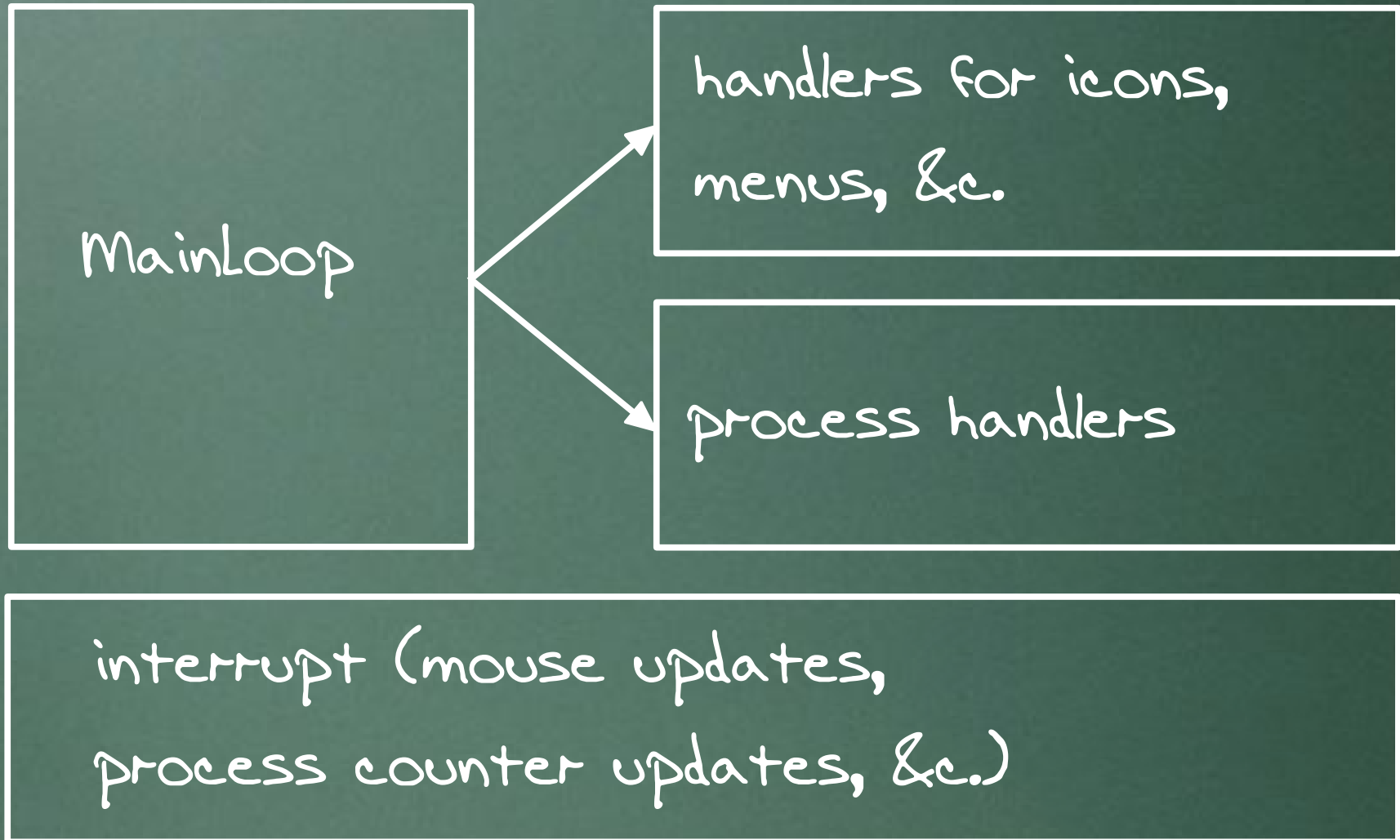
6502 TCP/IP stack (Per Olofsson/Jonno Downes)

- ✓ uses cc65's assembler and linker
- ✓ designed to support different build targets
- ✓ produces a single binary
- ✓ uses callbacks
- ✓ provides a wrapper API ("kipper")

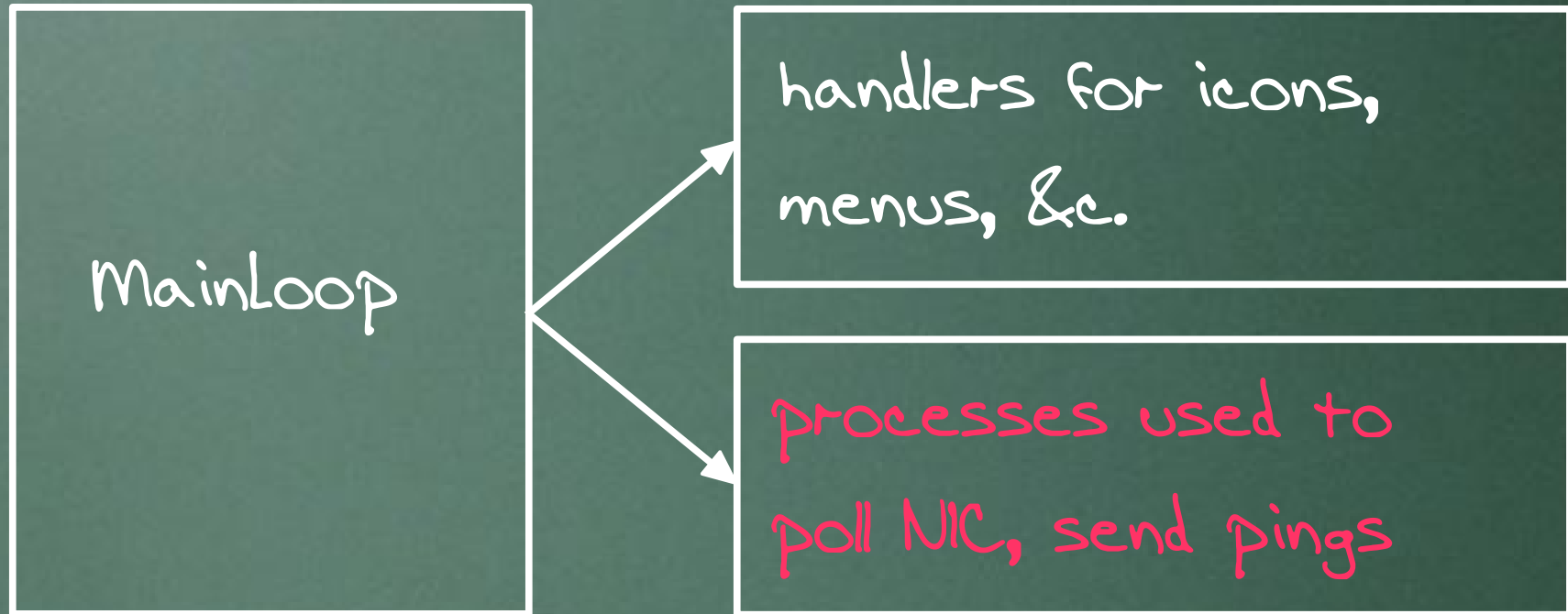
The Implementation

- ✓ specified ZP in GEOS "user pseudo-reg" area
- ✓ ip65 binary built to load from \$2F00-\$6000
- ✓ replaced cb4input.s (no check for STOP key)
- ✓ replaced nb65 dispatcher (finer API access)
- ✓ timer IRQ hook uses GEOS intBotVect
- ✓ NIC polling done by GEOS processes

GEOS Architecture



Use of GEOS Features



timer counter wedged into
interrupt handler at intBotVec

geolink - The Prototype

- ✓ a GEOS VLIR app
- ✓ resident module contains loaders, settings file handling, desk accessory invocation, validation
- ✓ separate VLIR modules loaded on demand for setup, ping, login, and chat
- ✓ possibility of adding more modules later (e.g. file downloads, message boards, &c.)

geolink Memory Map

\$6000

ip65 network stack

\$2500

VLIR
modules

setup
dialog

ping
dialog

login
dialog

chat
window

\$0400

resident module

Network Setup Dialog

geos | file

Network Settings

IP address:

192.168.1.109

Netmask:

255.255.255.0

Gateway:

192.168.1.99

DNS server:

192.168.1.99

MAC address:

00:80:10:00:00:65

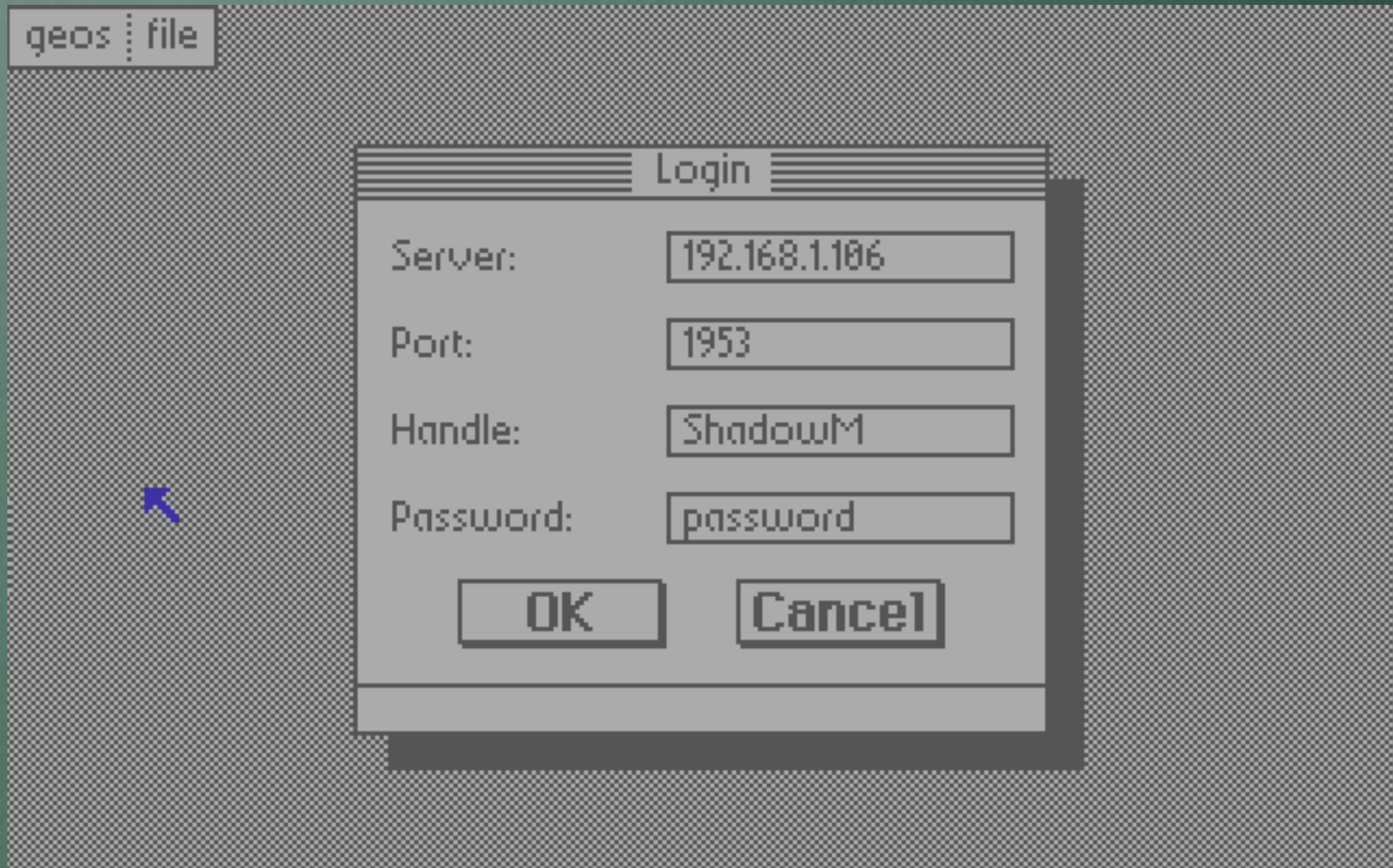
☒

use DHCP

OK

Cancel

Chat Login Dialog



Chat Window



Resources

general GEOS programming info:

<http://lyonlabs.org/commodore/onrequest/geos.html>

ip65 page on SourceForge:

<http://ip65.sourceforge.net/>

netboot65 ("Kipper") page on SourceForge:

<http://sourceforge.net/projects/netboot65/files/>

DEMO

may the demo gods be kind...