

module_init(func_2_mod_init)

bpf_unsafe_helper_register(func_2)

bpf_unsafe_helper_register()

bpf_unsafe_helper_array

func_1

func_2

func_3

mutex_lock(&bpf_unsafe_helper_mutex)
if bpf_unsafe_helper_array[i] == NULL
rcu_assign_pointer(bpf_unsafe_helper_array[i], func_2)
mutex_unlock(&bpf_unsafe_helper_mutex)

eBPF prog

func_2.o

token = 0xfeedbeef

cmd = (token << 32) | 1

bpf_unsafe_helper(cmd, ctx, data)

BPF_CALL_3(bpf_unsafe_helper, u64, cmd, void *, ctx, void *, data)

bpf_unsafe_helper_array

func_1

func_2

func_3

token = cmd >> 32

cmd = (u32) cmd

rcu_read_lock()
handler = rcu_dereference(bpf_unsafe_helper_array[1])
if handler != NULL
handler(ctx, data, token)
rcu_read_unlock()

module_exit(func_2_mod_exit)

bpf_unsafe_helper_unregister(func_2)

bpf_unsafe_helper_unregister()

bpf_unsafe_helper_array

func_1

NULL

func_3

mutex_lock(&bpf_unsafe_helper_mutex)
if bpf_unsafe_helper_array[i] == func_2
RCU_INIT_POINTER(bpf_unsafe_helper_array[i], NULL)
mutex_unlock(&bpf_unsafe_helper_mutex)
synchronize_rcu()