

**From:** [Rodney Joffe](#)  
**To:** [Keromytis, Angelos](#)  
**Subject:** 1pm march 2 will be fine.  
**Date:** Monday, February 13, 2017 1:22:23 AM

---

I'll let you know whether sterling or Tyson



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: [Non-DoD Source] Re: meeting  
**Date:** Thursday, April 19, 2018 8:26:28 PM

---

You and Link.

On Apr 19, 2018, at 20:23, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

I happen to have my chief technical guy for cleared stuff (Link King) here (he's based on the West Coast) through 1300 tomorrow. And John got back from RSA this afternoon.

Would it be useful for Link and/or John to join the meeting?

Begin forwarded message:

**From:** (b) (6) LTC USARMY ARCYBER (US)"  
(b) (6)  
**Subject:** Re: [Non-DoD Source] Re: meeting  
**Date:** April 19, 2018 at 7:39:51 PM EDT  
**To:** Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)>  
**Cc:** "Schneck, Christopher J CTR (US)"  
<[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)>

I can come to DARPA

Respectfully,

(b) (6)

On Apr 19, 2018, at 18:37, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

I can. Where? That would affect what Angelos can do, I suspect.

On Apr 19, 2018, at 6:27 PM, (b) (6)  
R LTC USARMY ARCYBER (US)  
(b) (6) wrote:

[REDACTED]

Thu 4/19/2016 8:24 PM

RJ

Rodney Joffe <rjoffe@centergate.com>

Fwd: [Non-DoD Source] Re: meeting

To Keromytis, Angelos

I happen to have my chief technical guy for cleared stuff (Link King) here (he's based on the West Coast) through 1300 tomorrow. And John got back from RSA this afternoon.

Would it be useful for Link and/or John to join the meeting?

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**Subject:** Re: [Non-DoD Source] Re: meeting  
**Date:** April 19, 2018 at 7:39:51 PM EDT  
**To:** Rodney Joffe <rjoffe@centergate.com>  
**Cc:** "Schneck, Christopher J CTR (US)" <christopher.schneck.ctr@darpa.mil>

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I can. Where? That would affect what Angelos can do, I suspect.

On Apr 19, 2018, at 6:27 PM, (b) (6) LTC USARMY ARCYBER (US) (b) (6) wrote:

Can we do 1200???

Respectfully,

(b) (6)

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(b) (6)

On Apr 19, 2018, at 16:49, Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@arpa.mil](mailto:christopher.schneck.ctr@arpa.mil)> wrote:

Yes, that's what I meant. Waiting to hear back from LTC (b) (6) if it's a go, I'll ask Angelos about attendees.

On Apr 19, 2018, at 4:36 PM, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

I think you meant 1100 at LTC (b) (6) site.

As far as clearances, mine (SCI) are held by the NSA so that should not require passing (I am in JPAS and Scattered Castles).

We could also hold it at my site in Sterling (I can go to TS at that site, not SCI).

Chris, could you please check if Angelos would be OK with John Hall and Link King, our Classified Tech Lead also joining, or if he thinks it should just be me?

Thanks

On Apr 19, 2018, at 12:45 PM, Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)> wrote:

That could work, Angelos just has to be back by 1300.

LTC (b) (6)

Are you available tomorrow at 1300? It might be too late for clearances for Rodney at your site but we could all meet out at Rodney's location.

Thanks,

Chris Schneck

DARPA I2O SETA

(b) (6)

-----Original Message-----

From: Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)>

Sent: Thursday, April 19, 2018 12:42 PM

To: Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)>

Cc: (b) (6) LTC USARMY ARCYBER (US) (b) (6)

Subject: Re: meeting

If we could do 11 tomorrow it would be the grand prize for me. I have an 8am in Chantilly.

On Apr 19, 2018, at 12:25 PM, Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)> wrote:

We could do it tomorrow morning 10ish if (b) (6) was available then.

Chris Schneck

DARPA I2O SETA

(b) (6)

-----Original Message-----

From: Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)>

Sent: Thursday, April 19, 2018 12:08 PM

To: Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)>

Cc: (b) (6) LTC USARMY ARCYBER (US) (b) (6)

Subject: Re: meeting

I am available tomorrow or most of next week. However I am likely OCONUS the week after.

On Apr 19, 2018, at 11:41 AM, Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)> wrote:

(b) (6)

I talked with Angelos and I think we should have the meeting to make sure everyone is on the same page. Let me know when everyone is available? Angelos won't be available until May 3-4. Let me know if one of those days would work.

Thanks,

(b) (6)

Chris Schneck

DARPA I2O SETA

(b) (6)

-----Original Message-----

From: Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)>

Sent: Thursday, April 19, 2018 9:34 AM

To: (b) (6) LTC USARMY ARCYBER (US) (b) (6)

Cc: Schneck, Christopher (contr-i2o) <[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)>

Subject: Re: meeting

Hello (b) (6)

Apologies for the delay. I am available whenever you are. What options do you have for time and place? I am located in Tysons Corner when I am in the office, but can meet anywhere, including up your way.

Regards

Rodney

-----  
Rodney Joffe

SVP, Senior Technologist, and Fellow

National Security Executive

Neustar, Inc.

1861 International Drive, 6th Floor

McLean VA 22102

USA

+1 202-533-2900 Direct

On Apr 19, 2018, at 9:22 AM, (b) (6) LTC USARMY ARCYBER (US (b) (6)) wrote:

Team,

I would like to get my money guys in touch with whomever is running the contract we are going to jump on. We are trying to get all of our contract lined up.

Respectfully,

(b) (6)

From: Schneck, Christopher (contr-i2o) [[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)]

Sent: Wednesday, April 18, 2018 7:56 AM

To: (b) (6) LTC USARMY ARCYBER (US)

Cc: [rjoffe@centergate.com](mailto:rjoffe@centergate.com)

Subject: meeting

(b) (6) and Rodney,

First, Rodney we didn't get the chance to meet but I am Angelos' new technical SETA. Nice to meet you, Im sure we will run into each other soon.

LTC (b) (6) I wanted to connect you and Rodney (Neustar) together because I think Rodney can provide you with some valuable opportunities and I know you weren't



From: Schneck, Christopher (contr-i2o) [[christopher.schneck.ctr@darpa.mil](mailto:christopher.schneck.ctr@darpa.mil)]

Sent: Wednesday, April 18, 2018 7:56 AM

To: (b) (6) LTC USARMY ARCYBER (US)

Cc: [rjoffe@centergate.com](mailto:rjoffe@centergate.com)

Subject: meeting

(b) (6) and Rodney,

First, Rodney we didn't get the chance to meet but I am Angelos' new technical SETA. Nice to meet you, Im sure we will run into each other soon.

LTC (b) (6) I wanted to connect you and Rodney (Neustar) together because I think Rodney can provide you with some valuable opportunities and I know you weren't able to make it the last time Rodney was at DARPA. If you want, we can arrange another meeting at DARPA or maybe back out at your facility. Either way, I didn't want the ball to drop, let me know if you need anything from me.

V/R,

Chris Schneck

DARPA I2O SETA

(b) (6)

[REDACTED]

**From:** [Keromytis, Angelos](#)  
**To:** [dacon@sudo.sh](mailto:dacon@sudo.sh); [Michael Farrell](#)  
**Cc:** [manos@gatech.edu](mailto:manos@gatech.edu)  
**Subject:** Fwd: PDF IOC extraction  
**Date:** Friday, April 14, 2017 9:47:29 PM

---

Fingers faster than brain.

Begin forwarded message:

**From:** "Keromytis, Angelos" <(b) (6)>  
**Subject:** PDF IOC extraction  
**Date:** April 14, 2017 at 9:46:59 PM EDT  
**To:** Mike Frantzen <[mikef@kududyn.com](mailto:mikef@kududyn.com)>  
**Cc:** [manos@gatech.edu](mailto:manos@gatech.edu), (b) (6)

Mike,  
can you share the IOC extraction tool with Manos? Or, if you've already used it on all the APT reports, can you send him the extracted indicators?  
Thanks,

Dr Angelos D. Keromytis  
Program Manager, Information Innovation Office (I2O)  
DARPA  
675 N. Randolph Street  
Arlington, VA 22203

(T) (b) (6)

(b) (6) (R)  
(SIPR)  
WICS)

[Redacted]

**From:** [Keromytis, Angelos](#)  
**To:** [Manos Antonakakis](#); [dagon](#); [mikef@kududyn.com](mailto:mikef@kududyn.com)  
**Cc:** (b) (6) [Angelos D Keromytis](#)  
**Subject:** I finally figure out..  
**Date:** Thursday, October 27, 2016 1:08:03 PM

---

How to export my DoD public cert...so, if you need to send me secure email to DARPA, use the attached.  
-Angelos

[REDACTED]

(b) (6)

(contr-sid)

---

**Subject:** Neustar-ARCYBER  
**Location:** DARPA HQ- 09-106

**Start:** Fri 4/20/2018 12:00 PM  
**End:** Fri 4/20/2018 1:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Keromytis, Angelos

**Required Attendees**Schneck, Christopher (contr- i2o); (b) (6) LTC USARMY ARCYBER (US); Rodney Joffe

(b) (6)

(contr-sid)

---

**From:** Keromytis, Angelos  
**Sent:** Tuesday, April 12, 2016 10:20 AM  
**To:** David Dagon  
**Cc:** Manos Antonakakis  
**Subject:** Quick question

You mentioned a source for DNS traces that would cost "7 figures". Do you have further details?

**From:** [Schneck, Christopher \(contr-i2o\)](#)  
**To:** [Rodney Joffe](#)  
**Cc:** [Keromytis, Angelos](#)  
**Subject:** RE: [Non-DoD Source] Re: meeting  
**Date:** Friday, April 20, 2018 9:02:50 AM

---

Rodney,

Link is good to go.

Angelos,

Do I need to book a conference room for a TS level discussion or can we do it in your office?

Chris Schneck  
DARPA I2O SETA

(b) (6)

-----Original Message-----

From: Schneck, Christopher (contr-i2o)  
Sent: Friday, April 20, 2018 7:18 AM  
To: 'Rodney Joffe' <rjoffe@centergate.com>  
Subject: RE: [Non-DoD Source] Re: meeting

I won't know the status until 8am. That's when they get in apparently. Did you send it through JPASS or fax?

Chris Schneck  
DARPA I2O SETA

(b) (6)

-----Original Message-----

From: Rodney Joffe <rjoffe@centergate.com>  
Sent: Friday, April 20, 2018 7:03 AM  
To: Schneck, Christopher (contr-i2o) <christopher.schneck.ctr@darpa.mil>  
Cc: (b) (6)  
Subject: Re: [Non-DoD Source] Re: meeting

Ack. I talked with Angelos. He asked me to bring Link King with. We passed clearances to your SMO last night. Could you please confirm?

> On Apr 20, 2018, at 5:19 AM, Schneck, Christopher (contr-i2o) <christopher.schneck.ctr@darpa.mil> wrote:

>

> That all will work for us. 1200 at DARPA

>

> On Apr 19, 2018, at 7:39 PM, (b) (6) LTC USARMY ARCYBER (US)

(b) (6) > wrote:

>

> I can come to DARPA

>

> Respectfully,

> (b) (6)

[REDACTED]

(b) (6)

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> LTC (b) (6)

> Are you available tomorrow at 1300? It might be too late for clearances for Rodney at your site but we could all meet out at Rodney's location.

> Thanks,

[REDACTED]

> Chris Schneck  
> DARPA I2O SETA

> (b) (6)

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> <rjoffe@centergate.com<<mailto:rjoffe@centergate.com>>>  
> Sent: Thursday, April 19, 2018 12:42 PM  
> To: Schneck, Christopher (contr-i2o)  
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> Cc: (b) (6) LTC USARMY ARCYBER (US)  
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> Chris Schneck  
> DARPA I2O SETA

> (b) (6)

> -----Original Message-----

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> <rjoffe@centergate.com<<mailto:rjoffe@centergate.com>>>  
> Sent: Thursday, April 19, 2018 12:08 PM  
> To: Schneck, Christopher (contr-i2o)  
> <christopher.schneck.ctr@darpa.mil<<mailto:christopher.schneck.ctr@darpa.a.mil>>>  
> Cc: (b) (6) LTC USARMY ARCYBER (US)  
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> DARPA I2O SETA

> (b) (6)

[REDACTED]



(b) (6)

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> (b) (6)

> Cc: Schneck, Christopher (contr-i2o)

> <christopher.schneck.ctr@darpa.mil<mailto:christopher.schneck.ctr@darpa.mil>>

> a.mil>>

> Subject: Re: meeting

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> Hello LTC (b) (6)

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> Apologies for the delay. I am available whenever you are. What options do you have for time and place? I am located in Tysons Corner when I am in the office, but can meet anywhere, including up your way.

>

> Regards

> Rodney

>

> Rodney Joffe

> SVP, Senior Technologist, and Fellow

> National Security Executive

> Neustar, Inc.

> 1861 International Drive, 6th Floor

> McLean VA 22102

> USA

> +1 202-533-2900 Direct

> +1 602-418-6471 Cell

> rodney.joffe@team.neustar<mailto:rodney.joffe@team.neustar>

>

> On Apr 19, 2018, at 9:22 AM, (b) (6) LTC USARMY ARCYBER (US)

(b) (6) wrote:

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> Team,

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(b) (6)

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>

> From: Schneck, Christopher (contr-i2o)

> [christopher.schneck.ctr@darpa.mil<mailto:christopher.schneck.ctr@darpa.mil>]

> a.mil>

> Sent: Wednesday, April 18, 2018 7:56 AM

> To: (b) (6) LTC USARMY ARCYBER (US)

> Cc: rjoffe@centergate.com<mailto:rjoffe@centergate.com>

[REDACTED]

> Subject: meeting

>

> LTC (b) (6) and Rodney,

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> First, Rodney we didn't get the chance to meet but I am Angelos' new technical SETA. Nice to meet you, Im sure we will run into each other soon.

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>

> V/R,

>

>

> Chris Schneck

> DARPA I2O SETA

> (b) (6)

>

>

>

>

>

>

>

>

>

>

[REDACTED]

**From:** [Keromytis, Angelos](#)  
**To:** [dagon](#)  
**Cc:** [Ann.Cox@HQ.DHS.GOV](#); [Manos Antonakakis](#)  
**Subject:** Re: attribution note  
**Date:** Friday, November 18, 2016 12:09:16 PM

---

Thanks David.

Ann, let me know if/when you want to talk.  
-Angelos

> On Nov 18, 2016, at 8:49 AM, dagon <dagon@sudo.sh> wrote:  
>  
> Hi Ann,  
>  
> It was good to see you at the DINR DNS conference. As I mentioned,  
> we're working on an Enhanced Attribution project under DARPA. Angelos  
> Keromytis, copied above, is our PM.  
>  
> Angelos, Ann was our PM under a previous BAA, which created  
> essential tools and data insights, many now being used in our EA  
> effort. Ann is also looking at the attribution area, and even has an  
> older, broader whitepaper Manos and I wrote (pre-EA) outlining major  
> research problems in this space. Ann is also interested in any of our  
> early EA insights. So I suggested I would connect you both.  
>  
> While it's hard to predict future policy directions, one path seems  
> to hold an increased interest in cyber protections. So, you both  
> might want to compare notes about attribution, and consider what open  
> problems remain.  
>  
> Best,  
>  
> --  
> David Dagon  
> dagon@sudo.sh  
> D970 6D9E E500 E877 B1E3 D3F8 5937 48DC 0FDC E717

**From:** [Rodney Joffe](#)  
**To:** [Keromytis, Angelos](#)  
**Subject:** Re: Chat  
**Date:** Friday, January 6, 2017 1:47:08 PM

---

Ack

- > On Jan 6, 2017, at 1:42 PM, Keromytis, Angelos (b) (6) wrote:
- >
- >
- > Rodney, call me after 3:30 at my office (b) (6).

[REDACTED]

**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: Confirming address and time for tomorrow  
**Date:** Wednesday, March 1, 2017 10:49:38 PM

---

Excellent. We're all arriving separately, but you have the names of everyone who's coming in.

Looking forward to it :)

Dr Angelos D. Keromytis  
Program Manager, Information Innovation Office (I2O)  
DARPA  
675 N. Randolph Street  
Arlington, VA 22203

(T) (b) (6)

(b) (6) (R)  
(SIPR)  
(WICS)

On Mar 1, 2017, at 10:25 PM, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

We're expecting your gang at 1pm at

46000 Center Oak Plaza  
Sterling VA 20166

We've got a lot to cover and not much time. Our agenda takes us to 4:15 or so on the unclass side alone.

We have a LOT of stuff Lisa is authorizing :-)

[REDACTED]

(b) (6)

contr-sid

---

**From:** Rodney Joffe <rjoffe@centergate.com>  
**Sent:** Monday, December 11, 2017 1:49 PM  
**To:** Keromytis, Angelos  
**Subject:** Re: Congratulations! Συγχαρητήρια!

> On Dec 11, 2017, at 1:42 PM, Keromytis, Angelos (b) (6) wrote:  
>  
> Hehehe...ευχαριστώ!  
>  
> I also got IEEE Fellow 2 weeks ago :)

Man, you're racking them up!! Congrats.

>  
>> On Dec 11, 2017, at 1:27 PM, Rodney Joffe <rjoffe@centergate.com> wrote:  
>>  
>> In case I miss you on text... Wow!  
>>  
>> Μεγάλα συγχαρητήρια!  
>>  
>>  
>

**From:** [dagon](#)  
**To:** [Keromytis, Angelos](#)  
**Cc:** [Antonakakis, Manos](#); (b) (6) ([contr-i2o](#))  
**Subject:** Re: DARPA domains  
**Date:** Monday, August 28, 2017 3:18:38 PM

---

On Mon, Aug 28, 2017 at 02:35:01PM +0000, Keromytis, Angelos wrote:  
> Nice :)

There's a "TODO" item, to find some missing timestamps, needed for accurate traffic analysis. I should have those soon, and will send an update. However, there's enough in the report to get started. We think we've identified an actor (or the last hop in a compromised account), as well as a likely victim.

--

David Dagon  
[dagon@sudo.sh](mailto:dagon@sudo.sh)  
D970 6D9E E500 E877 B1E3 D3F8 5937 48DC 0FDC E717



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: DNS datasets and more  
**Date:** Monday, April 25, 2016 12:21:38 AM

---

:)

1pm on Thursday it is. See you then.  
-Angelos

On Apr 24, 2016, at 10:45 PM, Rodney Joffe <rjoffe@centergate.com>  
wrote:

>

>> On Apr 24, 2016, at 8:54 PM, Keromytis, Angelos (b) (6) wrote:

>>

>> Rodney, thanks for the meeting the other day. I definitely want to talk about the details. This week, Thursday and Friday are good. After that, next open day for me is May 9. What works for you? I think meeting at DARPA would make sense? We're at 675 N Randolph Street, in Arlington (2 blocks for the Ballston metro station, Orange line).

>

> Until 6 months ago I lived (b) (6)

(b) (6)

>

> That works well. Thursday 1pm or so would be easiest for my partner to come up from Virginia Beach - as I said he is the brains of the company. But whatever works for you....

>

>>

>> I've known Steve for over 15 years, and we've been colleagues at Columbia for ~10. Steve's great. (I also know Randy, albeit not as well.)

>

> Well, you've met me now. You know the other two. So you can see why all 3 of us fit the curmudgeon bill in looks as well as network interests :-). Randy and Steve are obviously more focused on security protocols like you - there I am an idiot. But dns and networks - thats where my interest lie.

>

> Regards

> Rodney

>

>> Cheers,

>> -Angelos

>>

>> On Apr 24, 2016, at 6:50 PM, Rodney Joffe <rjoffe@centergate.com>

>> wrote:

>>

>>> Hi Angelos,

>>>

>>> First, thanks for meeting up with me on Friday. I appreciate you coming out west. As you said, maybe we could have met in Chantilly earlier :-)

>>>

>>> Second, I only just realized that you've done a lot of stuff with Steve Bellovin...

>>>

>>> I've known Steve for decades :-). He and I are two of a group of three that are referred to as curmudgeons in the network world (the other is Randy Bush). Steve is a good guy...

>>>

>>> Finally, let me know when you want to talk about the details around our general discussion. Should be much more interesting on the other side of the line...

[REDACTED]



>>>

>>> Regards

>>> Rodney

>>>

>>>

>>>> On Apr 21, 2016, at 3:00 PM, Keromytis, Angelos <(b) (6)> wrote:

>>>>

>>>> See numbers below.

>>>>

>>>> Dr. Angelos D. Keromytis

>>>> Program Manager

>>>> DARPA/Information Innovation Office

>>>> 675 N. Randolph Street, Arlington, VA 22203-2114

>>>> Tel: (b) (6)

>>>> (b) (6)

>>>>

>>>>

>>>>

>>>> On Apr 21, 2016, at 2:54 PM, Rodney Joffe <rjoffe@centergate.com>

>>>> wrote:

>>>>

>>>>> Angelos

>>>>>

>>>>> Are you still around in DC?

>>>>>

>>>>> What is a better way of contacting you than email? I keep meaning to call you to set up time but get sidetracked.

>>>>>

>>>>> I am on (b) (6)

>>>>>

>>>>>

>>>>>> On Apr 13, 2016, at 6:00 PM, Keromytis, Angelos <(b) (6)> wrote:

>>>>>>

>>>>>> Thanks Mano.

>>>>>>

>>>>>> Rodney, very pleased to meet you.

>>>>>>

>>>>>> This Friday may work, if you're available late in the afternoon (3:30pm or later). Next Friday works too, either morning or similarly late (4pm or after). Next Thursday may also work in the afternoon.

>>>>>> Best,

>>>>>> -Angelos

>>>>>>

>>>>>>

>>>>>>> On Apr 13, 2016, at 2:36 PM, Rodney Joffe <rjoffe@centergate.com>

>>>>>>> wrote:

>>>>>>>

>>>>>>> Manos, Thanks for the introduction.

>>>>>>>

>>>>>>> Angelos, pleased to meet you.... And happy to meet in person. My office is next to the White House (EEOB) on 18th/Penn.

>>>>>>>

>>>>>>> When would you like to meet? I have openings this Friday, then some gaps at the end of next week.

>>>>>>>

>>>>>>> Regards

>>>>>>> Rodney

>>>>>>>

>>>>>>>> On Apr 13, 2016, at 2:02 PM, Manos Antonakakis <manos@gatech.edu> wrote:

[REDACTED]

>>>>>>>>

>>>>>>>> Hey Rodney,

>>>>>>>>

>>>>>>>> Please allow me to introduce you to Professor Keromytis from Columbia  
>>>>>>>> University, currently a program manager in DARPA.

>>>>>>>>

>>>>>>>> Angelos, Rodney is one of the most important persons when we talk  
>>>>>>>> about operational security (vis-a-vis, lets get stuff done). Not sure  
>>>>>>>> an email is enough to describe Rodney's work, but this nice video  
>>>>>>>> (<https://www.youtube.com/watch?v=J-e3aO7rc0E>) captures some of his  
>>>>>>>> highlights.

>>>>>>>>

>>>>>>>> Rodney and Angelos, you are both local in DC. Rodney, Angelos is  
>>>>>>>> trying to understand the commercial data landscape, with some  
>>>>>>>> particular interest in DNS. We would really appreciate if you can  
>>>>>>>> spare some time from your busy schedule and have a discussion with  
>>>>>>>> Angelos. I know you have access to other datasets that might interest  
>>>>>>>> him, but I will leave this discussion up to you two.

>>>>>>>>

>>>>>>>> Many thanks,

>>>>>>>>

>>>>>>>> Manos

>>>>>>>>

>>>>>>>>

>>>>>>>>

>>>>>>>>

>>>>>>>>

>>>>>>>>

>>>>>>>>

>>>>>>>>



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Cc:** (b) (6) (contr-i2o)  
**Subject:** Re: introduction  
**Date:** Tuesday, January 10, 2017 12:45:16 PM

---

I was thinking of coming over, and 20 minutes out of respect for her time. I'd be happy to do longer and/or at DARPA.

-Angelos

---

**From:** Rodney Joffe  
**Sent:** Tuesday, January 10, 2017 10:04 AM  
**To:** Keromytis, Angelos  
**Cc:** Patel, Tejas (contr-i2o)  
**Subject:** Re: introduction

---

Angelos, unless you were planning otherwise, I thought it would be great if you invited her to Randolph St, dog and pony show. But 20 minutes sounds like you just want a phone conversation?

Or were you thinking of coming to one of our offices? If so, she spends time at her office in DC next to the White House, or the office in Tysons corner, or on the main campus in sterling where we have a secure facility cleared to TS.

Let me know

Thanks  
Rodney

On Jan 10, 2017, at 9:47 AM, Naperkoski, Valerie <[Valerie.Naperkoski@neustar.biz](mailto:Valerie.Naperkoski@neustar.biz)> wrote:

Hi (b) (6)

Would Angelos like to schedule a call or face-to-face meeting?

Thanks,  
Val

---

**From:** Keromytis, Angelos [<mailto:angelos.keromytis@darpa.mil>]

**Sent:** Tuesday, January 10, 2017 8:41 AM

**To:** Hook, Lisa <[Lisa.Hook@neustar.biz](mailto:Lisa.Hook@neustar.biz)>

**Cc:** Joffe, Rodney <[Rodney.Joffe@neustar.biz](mailto:Rodney.Joffe@neustar.biz)>; Naperkoski, Valerie <[Valerie.Naperkoski@neustar.biz](mailto:Valerie.Naperkoski@neustar.biz)>; Gregory, Liebe <[Liebe.Gregory@neustar.biz](mailto:Liebe.Gregory@neustar.biz)>;

(b) (6) (contr-i2o) (b) (6)

**Subject:** Re: introduction

Lisa,

thank you.

Val, Liebe,

(b) (6)(cc'ed) will coordinate on my side.

Safe travels.

-Angelos

[REDACTED]

On Jan 10, 2017, at 6:53 AM, Hook, Lisa <[Lisa.Hook@neustar.biz](mailto:Lisa.Hook@neustar.biz)>

wrote:

Dr. Keromytis,

Absolutely. I am on the road until the last week of January and happy to meet then, and can speak by phone prior if you want.

Copying Val/Liebe to schedule.

Looking forward to meeting you.

Lisa

Lisa A. Hook

Neustar, Inc. / President and Chief Executive Officer

21575 Ridgetop Circle Sterling, VA 20166

Office: +1.571.434.5630 Mobile: +1.202.907.5672 Fax:

+1.571.434.5489 / [lisa.hook@neustar.biz](mailto:lisa.hook@neustar.biz) / [www.neustar.biz](http://www.neustar.biz)

On Jan 10, 2017, at 01:08, Keromytis, Angelos

(b) (6) wrote:

Lisa,

We haven't met, but you may have heard of some of the work going on at DARPA. Neustar and Rodney have been very helpful in the past few months, and I'd like to thank you for that.

I was wondering if I could get 20 minutes of your time at some point in the near future.

Best,

Dr Angelos D. Keromytis

Program Manager, Information Innovation Office (I2O)

DARPA

675 N. Randolph Street

Arlington, VA 22203

(b) (6)

(R)  
(SIPR)  
(VICS)

[Redacted]

**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: manos/Briefing  
**Date:** Tuesday, February 21, 2017 9:30:13 PM

---

:)

Original Message  
From: Rodney Joffe  
Sent: Tuesday, February 21, 2017 6:56 PM  
To: Keromytis, Angelos  
Subject: Re: manos/Briefing

Nope, doesn't matter, so lets do it. I'll send the directions, and we can pass clearances in the next couple of days.

Now I am off to see Lisa to see what other things she's prepared to uncover for you :-). You made a great impression. Two of the things I didn't even know that we had!

> On Feb 21, 2017, at 6:53 PM, Keromytis, Angelos <(b) (6)> wrote:

>  
> Everyone except Manos is cleared. It could be useful to have the option, but that's a secondary consideration. If it doesn't matter otherwise, let's do that.

> Original Message  
> From: Rodney Joffe  
> Sent: Tuesday, February 21, 2017 6:42 PM  
> To: Keromytis, Angelos  
> Subject: Re: manos/Briefing

> No objections at all.

> If we can do this in sterling, then we can go to the high side TS in the same room if you find a need.

> ?

>> On Feb 21, 2017, at 6:40 PM, Keromytis, Angelos <(b) (6)> wrote:

>> It makes perfect sense.  
>> Since you broached the topic, I was thinking of the following on our end:

>> Myself  
>> (b) (6) (office deputy director)  
>> (b) (6) (program manager, just like me)

>> Manos  
>> At least one of:

>> (b) (6)

[Redacted]

>>

>> The last 3 are from the same team in my program (the same program Manos is in). All former IC operators, with active high-level clearances.

>>

>> Any issues/objections?

>> -Angelos

>>

>>

>> Original Message

>> From: Rodney Joffe

>> Sent: Tuesday, February 21, 2017 6:04 PM

>> To: Keromytis, Angelos

>> Subject: manos/Briefing

>>

>>

>> Angelos,

>>

>> Just thinking out "aloud". I'm working on the briefing for you guys next week. At some stage I would also give this to Manos in the hopes that he can also help us out on how to improve what we do on data collection and analysis. Does it make sense/work for you if I invite Manos to come sit in on the briefing as well?

>>

>> Regards

>> Rodney

>>

>



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: Meeting today  
**Date:** Tuesday, August 28, 2018 10:38:54 AM

---

Will do

- > On Aug 28, 2018, at 10:26 AM, Rodney Joffe <rjoffe@centergate.com> wrote:
- >
- > When you arrive, please ask for Liebe Gregory, Charlie's EA.
- >
- > Thanks!
- > Rodney



**From:** [Rodney Joffe](#)  
**To:** [Keromytis, Angelos](#)  
**Subject:** Re: Monday's EA PI Meeting  
**Date:** Thursday, May 4, 2017 4:38:02 PM  
**Attachments:** [signature.asc](#)

---

Yes, meant the 22nd. Heh.

OK, I will fill out the registration. Thanks!

> On May 4, 2017, at 4:23 PM, Keromytis, Angelos **(b) (6)** wrote:

>

> You mean on the 22nd? You are more than welcome.

>

>> On May 4, 2017, at 15:04, Rodney Joffe <rjoffe@centergate.com> wrote:

>>

>> Hello Angelos

>>

>> I hope you're doing well...

>>

>> As a "sub", do you think it would be useful for me to attend part of the day this coming Monday?

>>

>> Regards

>> Rodney

>>

[REDACTED]



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Subject:** Re: Oh, forgot  
**Date:** Thursday, March 2, 2017 7:36:46 AM

---

I don't tell people how to dress — they'll come in all shapes and garments. I'll be my usual :)

Dr Angelos D. Keromytis  
Program Manager, Information Innovation Office (I2O)  
DARPA  
675 N. Randolph Street  
Arlington, VA 22203

(b) (6)

On Mar 1, 2017, at 10:37 PM, Rodney Joffe <[rojoffe@centergate.com](mailto:rojoffe@centergate.com)> wrote:

Dress is geek casual at sterling campus. Jeans are common.

[REDACTED]

**From:** [Antonakakis, Manos](#)  
**To:** [Rodney Joffe](#)  
**Cc:** [Keromytis, Angelos](#)  
**Subject:** Re: PF access  
**Date:** Thursday, October 26, 2017 12:53:06 PM

---

I need to be able to query domain names, zones and IP addresses, Rodney.

—  
Manos Antonakakis | [manos@gatech.edu](mailto:manos@gatech.edu)  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

---

From: Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)>  
Sent: Thursday, October 26, 2017 11:14:55 AM  
To: Antonakakis, Manos  
Cc: Dr. Angelos Keromytis Ph.D.  
Subject: Re: PF access

What fields do you need via the API?

It will make a difference in how quickly I can arrange access.

R

> On Oct 26, 2017, at 7:53 AM, Antonakakis, Manos <[manos@gatech.edu](mailto:manos@gatech.edu)> wrote:  
>  
> Hey Rodney,  
>  
> Angelos would like me to get access to the PF API. Can you please let us know if this is possible?  
>  
> Thanks,  
>  
> —  
> Manos Antonakakis | [manos@gatech.edu](mailto:manos@gatech.edu)  
> Georgia Institute of Technology  
> FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668  
>

**From:** [Keromytis, Angelos](#)  
**To:** [dagon](#)  
**Cc:** [Manos Antonakakis](#)  
**Subject:** Re: Quick question  
**Date:** Tuesday, April 12, 2016 4:59:49 PM

---

Awesome, I'll hold off on any actions until I hear back on the new data set.  
-Angelos

On Apr 12, 2016, at 4:51 PM, dagon <dagon@sudo.sh>  
wrote:

> On Tue, Apr 12, 2016 at 08:03:07PM +0000, Keromytis, Angelos wrote:  
>  
>> Ah, I mis-heard what you said last week. My current question is very  
>> specifically about DNS. Yes, I know about Kaminski's gig; is there  
>> anything else out there?  
>  
> For passive DNS data, here are some data sources:  
>  
> -- Farsight passive DNS (which can be expensive, but has a robust  
> API and bulk offering, along with good collector tools e.g.,  
> DNSTap, now integrated into the major DNS source code trees  
> (BIND, Unbound, etc.)). This is close to seven figures in cost,  
> actually.  
>  
> -- Georgia Tech's "passive DNS data", collected from US ISPs. We  
> don't yet have permission to share this, but hope to. We're  
> starting with 4 geobalanced regions in the US and expanding.  
> Passive DNS is always on our critical path, so we're building our  
> own collection using ISP data as well as campus data.  
>  
> -- Georgia Tech's new "active DNS" (a substitute for passive DNS  
> based on active queries.) This yields the same rdata as passive  
> DNS, but without the organic user query rates. This is  
> free/public, and designed to help academics who don't have budget  
> or deep DNS industry connections. If you're not connected to the  
> Usenix PC or reviewing, we'll even send you a paper.  
>  
> -- Georgia Tech's malware DNS feed (also now in DHS's PREDICT data,  
> recently renamed as IMPACT). This offers DNS output from 100K  
> daily malware executions. This is free to vetted users, and we  
> use DHS as a clearing house, <https://www.impactcybertrust.org/>  
>  
> Note that these are not user-driven lookups, but automated  
> executions, so query volumes are not useful. GTRI inside GT also  
> has a larger feed.  
>  
> -- There are many other non-US offerings and smaller passive DNS  
> datasets:  
>  
> BFK.de (the original passive DNS collection; small);  
>  
> VirusTotal (small passive DNS data set, but rich in malware

> lookups).

>

> CIRCL (small);

>

> PassiveDNS.cn (via Qihoo 360, this is CN CERT's passive DNS project for China. For research, I'd avoid this, since China conducts DNS poisoning, making the data unusable for most purposes. It's probably great for censorship studies, however, since it potentially offers a fairly complete collection of CN network censorship events!).

>

> Mnemonic;

>

> PassiveTotal (small);

>

> RiskIQ (commercial/ad oriented);

>

> TCPIPUtils (and various small related sites, e.g., domaintools even offers a passive DNS set, etc. Hurricane Electric has a small passive DNS offering, etc.)

>

> Some of the AV companies (e.g., AVG, Trend, etc.). These are not generally commercially available, but they might work with DARPA. Ask if you need introductions. Many of the "smaller" open recursives are exiting the market now or selling their recursives (and data feeds) to the security industry.

>

> I mention these other small projects because there's a useful long tail to passive DNS data, which collect from different network locations, user populations, etc. In some research, every passive DNS source may turn out to be useful. Chris Lee, formerly of GT and now in the Virginia area, offers a nice API for collecting these.

>

> And of course APT attacks result in DNS behavior on corporate recursives, often just a single packet, which are \*never\* shared with passive DNS collectors. There's a small community of researchers that share/trade these indicators. These APT data sources are not yet commodity/public, and are often silo'd unfortunately. There are a few very small "APT indicator feeds" that are public, but are essentially derivations of whitepapers and mailing lists/public knowledge.

>

> There's also another passive DNS data set, far larger than FarSight (and likely very affordable), but it's not yet public/commercially available. We're working to connect you with the owner, consistent with various NDAs that prevent us from sharing more details. IMHO, this new source would be your first go-to for passive DNS, if/when it becomes available.

>

> I will follow up more if we can connect you to the new DNS data source. Else, the list above is a good summary of public and commercial passive DNS data sources.

>

> Hope this helps,

>

> --

> David Dagon

> dagon@sudo.sh



> D970 6D9E E500 E877 B1E3 D3F8 5937 48DC 0FDC E717



**From:** [Keromytis, Angelos](#)  
**To:** [Rodney Joffe](#)  
**Cc:** (b) (6) (contr-i2o)  
**Subject:** Re: Thank you...  
**Date:** Thursday, March 2, 2017 10:01:59 PM

---

Rodney, thank \*you\*. This was truly great and eye opening for us!

Dr Angelos D. Keromytis  
Program Manager, Information Innovation Office (I2O)  
DARPA  
675 N. Randolph Street  
Arlington, VA 22203

(b) (6)

On Mar 2, 2017, at 8:27 PM, Rodney Joffe <[rjoffe@centergate.com](mailto:rjoffe@centergate.com)> wrote:

Angelos,

Thanks for getting the team over to see us today. I've never been present at a meeting like this at Neustar. We've never shared so much and it was mostly eye-opening and educational for me, and many of our folks! So we benefitted enormously as well.

I am providing below the email addresses of all of our attendees - your guys were looking for the info. In addition our people would like to get the contact info from your team ;-)

Could you please provide the equivalents, where they are comfortable :-) ?

Looking forward to following up. Enjoy your trip to Australia!

Regards  
Rodney

(b) (6)

(b) (6)

[REDACTED]

**From:** Keromytis, Angelos  
**To:** (b) (6) SA USAF AFOSI AFOSI/3 FIS/CI&O; Antonakakis, Manos; dagon@sudo.sh; Farrell, Michael D; (b) (6) Schneck, Christopher (contr-i2o); Demar, Jeremy  
**Cc:** (b) (6) CIV USAF AFOSI AFOSI/3 FIS/CIO (b) (6) (contr-i2o)  
**Subject:** RE: Visit and Talk?  
**Date:** Thursday, June 28, 2018 11:36:58 AM

---

I can't do a call on the morning of July 13, but either (b) (6) or Chris should be able to,  
Cheers,  
-Angelos

-----Original Message-----

**From:** (b) (6) SA USAF AFOSI AFOSI/3 FIS/CI&O (b) (6)  
**Sent:** Thursday, June 28, 2018 10:22 AM  
**To:** Antonakakis, Manos <manos@gatech.edu>; dagon@sudo.sh; Farrell, Michael D <Michael.Farrell@gtri.gatech.edu>; Keromytis, Angelos (b) (6); (b) (6) (b) (6); Schneck, Christopher (contr-i2o) <christopher.schneck.ctr@darpa.mil>; Demar, Jeremy <jdemar3@gatech.edu>  
**Cc:** (b) (6) CIV USAF AFOSI AFOSI/3 FIS/CIO (b) (6)  
**Subject:** RE: Visit and Talk?

Hey Manos,

Awesome! How about the 13th then? Maybe we can meet sometime in the morning/early afternoon so (b) (6) and I can get a flight home that afternoon/evening so our families so don't kill us for traveling so much :)

Like I said I don't think we want to do anything formal just have a talk about tactics and methods as best we all can (share) and then perhaps have a discussion on what things are helpful to our mission/operation and what other things we can use to take advantage of that maybe you all aren't aware of.

We have a great relationship with Angelos and his folks so obviously we welcome their involvement but if this is too short notice maybe they can even dial in?

(b) (6)

-----Original Message-----

**From:** Antonakakis, Manos [<mailto:manos@gatech.edu>]  
**Sent:** Tuesday, June 26, 2018 8:55 PM  
**To:** (b) (6) SA USAF AFOSI AFOSI/3 FIS/CI&O (b) (6); dagon@sudo.sh; Farrell, Michael D <Michael.Farrell@gtri.gatech.edu>; Keromytis, Angelos D CIV DARPA (US) (b) (6) (contr-i2o) <christopher.schneck.ctr@darpa.mil>; Demar, Jeremy <jdemar3@gatech.edu>  
**Cc:** (b) (6) CIV USAF AFOSI AFOSI/FIR 7/FIS 3 (b) (6)  
**Subject:** [Non-DoD Source] Re: Visit and Talk?

Hey (b) (6)

Happy to host you in my lab. I will be in DC on the 9th and 10th of July for sure. The chances are that I will be able to get the first flight on the 11th and be at the lab by 9.30am or so. The 12th and 13th will work for sure.

DARPA PM team, I am CCing you just as an FYI. You are more than welcome to attend, if you wish.

Thanks,

[REDACTED]



Manos Antonakakis | manos@gatech.edu  
Georgia Institute of Technology  
FF7D 4FDF 9115 8077 92D2 5B59 5120 5E89 BE1B 3668

---

From: (b) (6) SA USAF AFOSI AFOSI/3 FIS/CI&O <(b) (6)>  
Sent: Tuesday, June 26, 2018 4:20:05 PM  
To: Antonakakis, Manos; dagon@sudo.sh; Farrell, Michael D  
Cc: (b) (6) CIV USAF AFOSI AFOSI/FIR 7/FIS 3  
Subject: Visit and Talk?

Gents,

Greetings from Texas! So you met a few associates of ours (Glenn) a few weeks back for your briefings. (b) (6) and I unfortunately could not attend due to late notice of the meetings and we were booked elsewhere! I finally got the slide deck and wanted to talk to you about a few things and have a bit of a brainstorming session. Some of the questions and scenarios you bring up I think I have some more fidelity on that would be worth talking about in person, if possible.

So (b) (6) and I are doing a little East Coast swing in a few weeks (9-13 July) would you all by chance be available to meet up and talk some cyberz for a bit?

(b) (6)

(b) (6)

Special Agent  
Air Force Office of Special Investigations 3rd Field Investigations Squadron Cyber Investigations and Operations  
Lackland AFB, TX

Office: (b) (6)  
Cell: (b) (6)

[REDACTED]

**From:** [mikef@kududyn.com](mailto:mikef@kududyn.com)  
**To:** [Rodney Joffe](mailto:Rodney.Joffe); [John.Hall@neustar.biz](mailto:John.Hall@neustar.biz); [Link.King@neustar.biz](mailto:Link.King@neustar.biz); [Robert.Seastrom@neustar.biz](mailto:Robert.Seastrom@neustar.biz);  
[John.Keaveney@neustar.biz](mailto:John.Keaveney@neustar.biz); [Xavier.Riley@neustar.biz](mailto:Xavier.Riley@neustar.biz); [Rupert.Young@neustar.biz](mailto:Rupert.Young@neustar.biz); [Ryan.Medlin@neustar.biz](mailto:Ryan.Medlin@neustar.biz);  
[hank.skorny@neustar.biz](mailto:hank.skorny@neustar.biz); [Sean.Kaine@neustar.biz](mailto:Sean.Kaine@neustar.biz)  
**Cc:** [Keromytis.Angelos](mailto:Keromytis.Angelos); (b) (6) (contr-i2o)  
**Subject:** Thank you for the presentations  
**Date:** Friday, March 3, 2017 9:25:56 AM

---

With the acceleration of big data in businesses I've seen a lot of interesting data source. Your crew at Neustar is the first that I've seen who had the foresight to link your disparate data sources and the engineering smarts to do it at scale; not for a single purpose like the advertisement driven companies but for many purposes. You've truly built something far greater than the sum of its parts! My head is still exploding. Thankyou!

Mike Frantzen  
Founder Kudu Dynamics  
(c) 703-527-1230



**From:** [Pierce, Brian](#)  
**To:** [rjoffe@centergate.com](mailto:rjoffe@centergate.com)  
**Cc:** [Keromytis, Angelos](#)  
**Subject:** Thanks  
**Date:** Sunday, March 5, 2017 4:06:54 PM

---

Dear Rodney,

Thank you again for hosting the very informative set of briefings at your facility in Sterling. I am impressed with what you have achieved and where you are going. I will be following up with Angelos on paths forward.

I mentioned a couple of programs in our office that are network-related, with top-level information as follows:

Edge-Directed Cyber Technologies for Reliable Mission Communication (EdgeCT)  
<http://www.darpa.mil/program/edge-directed-cyber-technologies-for-reliable-mission-communication>

Extreme DDoS Defense (XD3)  
<http://www.darpa.mil/program/extreme-ddos-defense>

Dr. Stuart Wagner is the Program Manager for these two programs.

Also, in case you have not looked at our Open Catalog of technical papers and open source software generated by programs in our office, I provide the link:

<https://opencatalog.darpa.mil/>

The XDATA program has developed a large number of data science tools that are in this catalog:  
<https://opencatalog.darpa.mil/XDATA.html>

The Memex program is developing greatly enhanced web search to include the deep and dark parts of the web, and has tools in the catalog:

<https://opencatalog.darpa.mil/MEMEX.html>

Sincerely,

Brian

Brian M. Pierce, PhD  
Deputy Director  
Information Innovation Office (I2O)  
DARPA

**(b) (6)**

**[REDACTED]**

(b) (6)

(contr-sid)

**Subject:** Understanding Requirements  
**Location:** 09-106, 675 North Randolph St, Arlington, VA 22203

**Start:** Thu 3/23/2017 11:00 AM  
**End:** Thu 3/23/2017 11:30 AM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Keromytis, Angelos

**Required Attendees:** Hall, John <John.Hall@neustar.biz>; Rodney Joffe; (b) (6) (contr i2o)

**Optional Attendees:** (b) (6)

Rodney and John:

You can use me as the POC tomorrow. In case you need to pass clearances, the information is available at <http://www.darpa.mil/policy/visitor-information>.

Regards,

(b) (6)

Systems Engineering and Technical Assistance DARPA I2O

work:

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NIPR:

SIPR:

JWICS

(b) (6)