It was imaginable 20 years ago.

Apple's Visionary Video: Knowledge Navigator (1987)

from www.open-video.org
Interaction with the Assistant

- Touch screens and cinematic animation
- Global network for info and collaboration
- Awareness of temporal and social context
- Continuous Speech in and out
- Conversational Interface - assistant talks back
- Delegation of tasks to the assistant
- Assistant use of personal data
Is the Knowledge Navigator vision possible today?

No.

But we're getting there.
How Close are we Today?

- Touch screens
- Cinematic effects
- Global network
- Location and time awareness
- Speech out, on demand
- Isolated speech to text

But where is the interface for assistance?
You just can't talk to a search engine this way.

"The future of search is a conversation with someone you trust."

-- John Battelle, The Search
What is needed is to put it all together.
Siri
A Virtual Personal Assistant
A Virtual Personal Assistant:

- **Does Things for You**
  focus on task completion

- **Gets What you Say**
  intent understanding via conversation

- **Gets to Know You**
  learns and applies personal information
A VPA helps you get things done

"what do you want to read?"

"at your service(s)"
Siri Helping you Do Things

- Multiple-criteria vertical search and browse
- combining multiple sources of information
- with integrated transactions
- and social communication

I found the following Italian restaurants that reviews say are romantic near your home.

Your table is reserved for 2 Saturday night at 8:00pm.

Your invitation has been sent to friend@email.com.
Employing the services of...

Contacts  Email  Maps

and many more...
So what's the big deal?
Lots of Steps, Lots of Apps

Apps required to do meal planning flow
And Lots of Tasks

Plan a Meal

Find something to do

Go to the movies

Find a store

Plan a trip

...
Service Delegation: The Mother of All Mash-ups

Web Services Directory

All APIs

<table>
<thead>
<tr>
<th>API</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google Maps</td>
<td>Mapping services</td>
</tr>
<tr>
<td>Flickr</td>
<td>Photo sharing service</td>
</tr>
<tr>
<td>YouTube</td>
<td>Video sharing and search</td>
</tr>
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<td>Amazon eCommerce</td>
<td>Online retail</td>
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<tr>
<td>Twitter</td>
<td>Microblogging service</td>
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<tr>
<td>eBay</td>
<td>Online auction marketplace</td>
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<tr>
<td>Microsoft Virtual Earth</td>
<td>Mapping services</td>
</tr>
<tr>
<td>delicious</td>
<td>Social bookmarking</td>
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<td>Google Search</td>
<td>Search services</td>
</tr>
<tr>
<td>Yahoo Maps</td>
<td>Mapping services</td>
</tr>
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<td>Yelp</td>
<td>Local user reviews and city guides</td>
</tr>
<tr>
<td>hostip.info</td>
<td>IP lookup</td>
</tr>
<tr>
<td>Netvibes</td>
<td>Personalized home page with widgets</td>
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<tr>
<td>PayPal</td>
<td>Online payments</td>
</tr>
<tr>
<td>Rhapsody</td>
<td>Online music services</td>
</tr>
<tr>
<td>WeatherBug</td>
<td>Weather forecast services</td>
</tr>
</tbody>
</table>

Web Services and APIs

Domain & Task Models

Guided Dialog
A Virtual Personal Assistant:

- **Does Things for You**
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- **Gets What you Say**
  - intent understanding via conversation

- **Gets to Know You**
  - learns and applies personal information
Understanding Intent in **Context**

- **Location Context**
  - ... near home
  - ... in downtown [San Jose]

- **Task Context**
  - ... [serving] burgers
  - ... [described as] romantic

- **Time Context**
  - ... this weekend
  - ... tomorrow night

- **Dialog Context**
  - ... hotels in Boston
  - ... weather [in Boston]
A Virtual Personal Assistant:

- **Does Things for You**
  focus on *task* completion

- **Gets What you Say**
  intent understanding via *conversation*

- **Gets to Know You**
  learns and applies *personal information*
Virtual Assistant Evolution

Doing Things For You
- Service APIs
- Data feeds
- Auth Standards
- SW & Data Commons
- Faceted Search Domains
- Recommendation Services

Getting What You Say
- Location
- Speech
- Semantic NLP
- Linguistic NLP
- Date/time
- Conversational UI
- Social Contexts

Getting Personal
- Contacts
- Calendars
- Explicit Preferences
- Profile
- Favorites
- Learned Preferences

Today  Tomorrow  Future
For More Information

www.siri.com