How to stream LLM and Chat Model responses

LangChain provides streaming support for LLMs. Currently, we support streaming for the `OpenAI`, `ChatOpenAI`. and `Anthropic` implementations, but streaming support for other LLM implementations is on the roadmap. To utilize streaming, use a `CallbackHandler` that implements `on_llm_new_token`. In this example, we are using `StreamingStdOutCallbackHandler`.

```python
from langchain.llms import OpenAI, Anthropic
from langchain.chat_models import ChatOpenAI
from langchain.callbacks.base import CallbackManager
from langchain.callbacks.streaming_stdout import StreamingStdOutCallbackHandler
from langchain.schema import HumanMessage
```

```python
llm = OpenAI(streaming=True,
callback_manager=CallbackManager([StreamingStdOutCallbackHandler()]),
verbose=True, temperature=0)
resp = llm("Write me a song about sparkling water.")
```

```
Verse 1
I'm sippin' on sparkling water,
It's so refreshing and light,
It's the perfect way to quench my thirst
On a hot summer night.

Chorus
Sparkling water, sparkling water,
It's the best way to stay hydrated,
It's so crisp and so clean,
It's the perfect way to stay refreshed.

Verse 2
I'm sippin' on sparkling water,
It's so bubbly and bright,
It's the perfect way to cool me down
On a hot summer night.

Chorus
```

Skip to main content

```
It's so crisp and so clean,
It's the perfect way to stay refreshed.

Verse 3
I'm sippin' on sparkling water,
It's so light and so clear,
It's the perfect way to keep me cool
On a hot summer night.

Chorus
Sparkling water, sparkling water,
It's the best way to stay hydrated,
It's so crisp and so clean,
It's the perfect way to stay refreshed.
```

We still have access to the end `LLMResult` if using `generate`. However, `token_usage` is not currently supported for streaming.

```
llm.generate(["Tell me a joke."])
```

```
Q: What did the fish say when it hit the wall?
A: Dam!
```

```
LLMResult(generations=[[Generation(text='\n\nQ: What did the fish say when it hit
the wall?\nA: Dam!', generation_info={'finish_reason': None, 'logprobs': None})]],
llm_output={'token_usage': {}, 'model_name': 'text-davinci-003'})
```

Here's an example with the `ChatOpenAI` chat model implementation:

```
chat = ChatOpenAI(streaming=True,
callback_manager=CallbackManager([StreamingStdOutCallbackHandler()]),
verbose=True, temperature=0)
resp = chat([HumanMessage(content="Write me a song about sparkling water.")])
```

```
Verse 1:
Bubbles rising to the top
A refreshing drink that never stops
Clear and crisp, it's oh so pure
Sparkling water, I can't ignore

Chorus:
Sparkling water, oh how you shine
A taste so clean, it's simply divine
```

Skip to main content

```
Verse 2:
No sugar, no calories, just H2O
A drink that's good for me, don't you know
With lemon or lime, you're even better
Sparkling water, you're my forever

Chorus:
Sparkling water, oh how you shine
A taste so clean, it's simply divine
You quench my thirst, you make me feel alive
Sparkling water, you're my favorite vibe

Bridge:
You're my go-to drink, day or night
You make me feel so light
I'll never give you up, you're my true love
Sparkling water, you're sent from above

Chorus:
Sparkling water, oh how you shine
A taste so clean, it's simply divine
You quench my thirst, you make me feel alive
Sparkling water, you're my favorite vibe

Outro:
Sparkling water, you're the one for me
I'll never let you go, can't you see
You're my drink of choice, forevermore
Sparkling water, I adore.
```

Here is an example with the `Anthropic` LLM implementation, which uses their `claude` model.

```python
llm = Anthropic(streaming=True,
callback_manager=CallbackManager([StreamingStdOutCallbackHandler()]),
verbose=True, temperature=0)
llm("Write me a song about sparkling water.")
```

```
Sparkling water, bubbles so bright,

Fizzing and popping in the light.

No sugar or calories, a healthy delight,

Sparkling water, refreshing and light.

Carbonation that tickles the tongue,

In flavors of lemon and lime unsung.
```

Skip to main content

Bubbles sparkling in the light.

'\nSparkling water, bubbles so bright,\n\nFizzing and popping in the light.\n\nNo sugar or calories, a healthy delight,\n\nSparkling water, refreshing and light.\n\nCarbonation that tickles the tongue,\n\nIn flavors of lemon and lime unsung.\n\nSparkling water, a drink quite all right,\n\nBubbles sparkling in the light.'